



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Woody Woodpecker
Sale AT-341-2020-W00590-01

District: Astoria

Date: August 02, 2019

Cost Summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$1,201,016.47	\$355,562.90	\$1,556,579.37
		Project Work:	(\$670,753.00)
		Advertised Value:	\$885,826.37



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District: Astoria

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Timber Description

Location: Portions of Sections 27, 28, 33, and 34, T4N, R8W, W.M., Clatsop County, Oregon

Stand Stocking: 60%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	25	0	97
Western Hemlock / Fir	16	0	97
Sitka Spruce	32	0	98
Red Cedar	38	0	97
Alder (Red)	16	0	98
Maple	14	0	98

Volume by Grade	2S	3S & 4S 6"-11"	Other	8" - 9"	10" - 11"	12"+	6" - 7"	Total
Douglas - Fir	956	242	0	0	0	0	0	1,198
Western Hemlock / Fir	2,157	1,186	0	0	0	0	0	3,343
Sitka Spruce	63	13	304	0	0	0	0	380
Red Cedar	0	3	0	0	0	0	0	3
Alder (Red)	0	0	0	425	507	254	249	1,435
Maple	0	0	0	7	0	0	3	10
Total	3,176	1,444	304	432	507	254	252	6,369

Comments: Pond Values: Local Pond Values, July 2019.

Expected Log Markets: Mist, Willamina, Banks, North Plains, Clatskanie, Tillamook, Garibaldi, Forest Grove, Warrenton, Wauna, Elma, WA, Longview, WA, Vancounver WA, and Chehalis, WA.

Conifer and Hardwood pulp: \$5.00/ton

Other Costs (With Profit and Risk to be added):

Machine Washing for Invasive Weed Compliance = \$4,000

Ditch Filters:

25 bales of straw @ \$10/bale = \$250

12 hours of labor @ \$40/hour = \$480

Flaggers for Logging over Lower Nehalem Road:

2 Flaggers x 240 Hrs x \$30/Hr = \$14,4000

Waterbar and Block Road Segment 1A to 1B and 1C to 1D:

8 Hrs w/ C315 Excavator @ \$101/Hr = \$808

TOTAL Other Costs (with Profit & Risk to be added): \$19,938

Other Costs (No Profit & Risk added):

Additional Fire Hose and water capacity: 2,000 ft X \$1/ft = \$2,000

TOTAL Other Costs (No Profit & Risk added) = \$2,000

ROAD MAINTENANCE

(See attached Road Maintenance Cost Summary Sheet)

TOTAL Road Maintenance: \$35,851/6,369 MBF = \$5.63/MBF

SLASH PILING

(See attached Site Prep Cost Summary Sheet)

TOTAL Site Prep Cost: \$10,716.00



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Logging Conditions

Combination#: 1

Douglas - Fir	51.00%
Western Hemlock / Fir	51.00%
Sitka Spruce	51.00%
Red Cedar	51.00%
Alder (Red)	51.00%
Maple	51.00%

Logging System: Cable: Medium Tower >40 - <70 **Process:** Manual Falling/Delimbing
yarding distance: Medium (800 ft) **downhill yarding:** No
tree size: Mature / Partial Cut (900 Bft/tree), 3-5 logs/MBF
loads / day: 8 **bd. ft / load:** 4300
cost / mbf: \$191.86
machines: Log Loader (A)
Tower Yarder (Medium)

Combination#: 2

Douglas - Fir	21.00%
Western Hemlock / Fir	21.00%
Sitka Spruce	21.00%
Red Cedar	21.00%
Alder (Red)	21.00%
Maple	21.00%

Logging System: Shovel **Process:** Harvester Head Delimbing
yarding distance: Short (400 ft) **downhill yarding:** No
tree size: Mature / Partial Cut (900 Bft/tree), 3-5 logs/MBF
loads / day: 9 **bd. ft / load:** 4800
cost / mbf: \$123.71
machines: Forwarder
Harvester

Combination#: 3

Douglas - Fir	23.00%
Western Hemlock / Fir	23.00%
Sitka Spruce	23.00%
Red Cedar	23.00%
Alder (Red)	23.00%
Maple	23.00%

Logging System: Cable: Large Tower >=70 **Process:** Harvester Head Delimbing
yarding distance: Long (1,500 ft) **downhill yarding:** No
tree size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF
loads / day: 9 **bd. ft / load:** 4800
cost / mbf: \$184.73
machines: Log Loader (A)
Forwarder
Harvester
Tower Yarder (Large)

Combination#: 4

Douglas - Fir	5.00%
Western Hemlock / Fir	5.00%

Sitka Spruce	5.00%
Red Cedar	5.00%
Alder (Red)	5.00%
Maple	5.00%

Logging System: Shovel

Process: Harvester Head Delimbing

yarding distance: Medium (800 ft)

downhill yarding: No

tree size: Mature / Partial Cut (900 Bft/tree), 3-5 logs/MBF

loads / day: 14

bd. ft / load: 4100

cost / mbf: \$93.10

machines: Forwarder
Harvester



"STEWARDSHIP IN FORESTRY"

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Logging Costs

Operating Seasons: 3.00	Profit Risk: 12%
Project Costs: \$670,753.00	Other Costs (P/R): \$19,938.00
Slash Disposal: \$10,716.00	Other Costs: \$2,000.00

Miles of Road

Road Maintenance: \$5.63

Dirt	Rock (Contractor)	Rock (State)	Paved
0.0	0.0	0.0	0.0

Hauling Costs

Species	\$ / MBF	Trips/Day	MBF / Load
Douglas - Fir	\$0.00	2.0	5.0
Western Hemlock / Fir	\$0.00	2.0	4.5
Sitka Spruce	\$0.00	2.0	4.5
Red Cedar	\$0.00	2.0	4.5
Alder (Red)	\$0.00	2.0	3.8
Maple	\$0.00	2.0	3.7



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Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Brand & Paint	Other	Total
Douglas - Fir									
\$170.97	\$5.80	\$2.07	\$97.85	\$3.13	\$33.58	\$1.68	\$2.00	\$0.31	\$317.39
Western Hemlock / Fir									
\$170.97	\$5.80	\$2.07	\$108.73	\$3.13	\$34.88	\$1.68	\$2.00	\$0.31	\$329.57
Sitka Spruce									
\$170.97	\$5.74	\$2.07	\$107.67	\$3.13	\$34.75	\$1.68	\$2.00	\$0.31	\$328.32
Red Cedar									
\$170.97	\$5.80	\$2.07	\$108.73	\$3.13	\$34.88	\$1.68	\$2.00	\$0.31	\$329.57
Alder (Red)									
\$170.97	\$5.74	\$2.07	\$127.50	\$3.13	\$37.13	\$1.68	\$2.00	\$0.31	\$350.53
Maple									
\$170.97	\$5.74	\$2.07	\$130.95	\$3.13	\$37.54	\$1.68	\$2.00	\$0.31	\$354.39

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$680.37	\$362.98	\$0.00
Western Hemlock / Fir	\$0.00	\$545.55	\$215.98	\$0.00
Sitka Spruce	\$0.00	\$440.47	\$112.15	\$0.00
Red Cedar	\$0.00	\$839.00	\$509.43	\$0.00
Alder (Red)	\$0.00	\$597.81	\$247.28	\$0.00
Maple	\$0.00	\$426.00	\$71.61	\$0.00



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Summary

Amortized

Specie	MBF	Value	Total
Douglas - Fir	0	\$0.00	\$0.00
Western Hemlock / Fir	0	\$0.00	\$0.00
Sitka Spruce	0	\$0.00	\$0.00
Red Cedar	0	\$0.00	\$0.00
Alder (Red)	0	\$0.00	\$0.00
Maple	0	\$0.00	\$0.00

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	1,198	\$362.98	\$434,850.04
Western Hemlock / Fir	3,343	\$215.98	\$722,021.14
Sitka Spruce	380	\$112.15	\$42,617.00
Red Cedar	3	\$509.43	\$1,528.29
Alder (Red)	1,435	\$247.28	\$354,846.80
Maple	10	\$71.61	\$716.10

Gross Timber Sale Value

Recovery: \$1,556,579.37

Prepared By: John Tillotson

Phone: 503-325-5451

Road Maintenance Cost Summary (Interim and Post Harvest)

Sale: Woody Woodpecker
Date: February 11, 2019
By: John Choate *FL*

MBF: 6,369.00
\$/MBF: \$5.63

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost
Interim Operations	Grader 14G	\$875	2	20	\$113	\$4,010
	Dump Truck 12CY	\$184	1	10	\$89	\$1,074
	FE Loader C966	\$875	1	3	\$94	\$1,157
	Vibratory Roller	\$875	2	20	\$87	\$3,490
Final Road Maintenance	Grader 14G	\$875	1	68	\$113	\$8,559
	Dump Truck 12CY	\$184	2	24	\$89	\$2,504
	FE Loader C966	\$875	1	8	\$94	\$1,627
	Vibratory Roller	\$875	1	68	\$87	\$6,791
	Water Truck 2,500 gallon	\$214	1	30	\$101	\$3,244
	Rubber Tired Backhoe-small	\$361	1	24	\$87	\$2,449
	Labor			13	\$45	\$946
Total						\$35,851

Interim Operations Road Maintenance

Production Rates	Miles/day	Distance (miles)	Days	Hours
Grader	2.5	6.00	2.4	19

Final Road Maintenance

Production Rates	Miles/day	Distance (miles)	Days	Hours
Grader	1.5	12.70	8.5	68
Vibratory Roller	1.5	12.80	8.5	68

Process and compact: All crushed rock roads

North Fork Road - 4.1

Sweethome Creek Road - 2.4

Hopin Home Road - 1.4

Kelser Ridge Road - 2.2

Woodpecker Spur - 0.8

Unarmed Spurs - 1.8

Grade & Process Total = 12.7

Sale Number: 341-2019-W00590-01
Sale Name: Woody Woodpecker
Date: 03/01/2019

Vegetation Type/Zone	Vegetation Type/Zone Code	Production Rate (hr/ac)	Estimated Piles/Acre
Doug-fir	A	1.0	3.0
Hemlock/Fir	B	1.5	4.5
Hemlock/Spruce	C	2.0	6.0
Hemlock	D	2.0	6.0
Conifer/Hardwood	E	1.5	4.5
Whole Tree Yarding	F	0.5	0.5

Sale Area	Harvest Type	Veg Type/Zone	Ground Based Yarding Acres	Estimated Piling Hours/Area	Cost/Hour	Total Cost/Area	
1	PCMP	E	4	6	\$129.00	\$774.00	
3	MC	E	5	8	\$129.00	\$967.50	
4	MC	E	7	11	\$129.00	\$1,354.50	
					In-unit Piling	Sub Total =	\$3,096.00
Sale Area	Number of Landings to be Piled	Cost/Landing Pile	Total Cost/Area	Number of In-Unit Piles	Material Cost/Pile	Total Cost/Area	
1	3	\$220.00	\$660.00	18	\$5.00	\$90.00	
3	4	\$220.00	\$880.00	22.5	\$5.00	\$112.50	
4	3	\$220.00	\$660.00	31.5	\$5.00	\$157.50	
*Cost includes separating firewood					Materials	Sub Total =	\$360.00
					Landing Piling	Sub Total =	\$2,200.00
Move-In Allowance	Number of Move-In's	Total Move-In Allowance					
\$1,290.00	2	\$2,580.00					
** Additional log loader time added to Area 4 for large landing cleanup (16 Hrs @ \$155/Hr = \$2,480)							\$2,480.00
					Move-In	Sub Total =	\$2,580.00
Grand Total =							\$10,716.00

SUMMARY OF ALL PROJECT COSTS

SALE NAME: Woody Woodpecker

Project No. 1: ROAD CONSTRUCTION:

	<u>Road segment</u>	<u>Length (Sta)</u>	<u>Length (Mile)</u>	<u>Cost</u>
Rocked	1E-1F,1G-1H,1I-1J	42.40	0.80	\$38,804.15
	1K-1L,1M-1N,4A-4B			
Dirt	1A-1B,1C-1D	38.20	0.72	\$15,199.53
	Road Maint.			\$1,046.30
	Move-In			\$1,753.93
	TOTALS	80.60	1.52	\$56,804

Project No. 2: ROAD IMPROVEMENT:

	<u>Road segment</u>	<u>Length (Sta)</u>	<u>Length (Mile)</u>	<u>Cost</u>
	11-12, 13-14, 15-16	619.9	11.74	\$220,581.73
	17-18, 19-110, 111-112			
	Road Maint.			\$4,273.70
	Move-In			\$7,164.07
	TOTALS		11.74	\$232,019

SPECIAL PROJECTS (Move-In and Road Maint. are included separately as needed, for each Special Project):

<u>Description</u>	<u>Length/Vol.</u>	<u>Cost</u>
Proj. 3 Rector Ridge Quarry Development, Rock Crushing, and Stockpile Construction	25,497 cy	\$377,391.00
Proj. 4 Road Vacating	0.6 mi.	\$4,538.12
TOTAL		\$381,929

GRAND TOTAL **\$670,753**

Compiled By: W. Lawrence

Date: 03/11/2019
8/26/19

Move In and Maintenance Calculator for Construction and Improvement

SALE NAME: Woody Woodpecker

Project No. 1: ROAD CONSTRUCTION:

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Length/Mile</u>	<u>Cost</u>
Rock	1E-1F,1G-1H,1I-1J	42.40	0.80	\$38,804.15
	1K-1L,1M-1N,4A-4B			
Dirt	1A-1B,1C-1D	38.20	0.72	\$15,199.53
TOTALS		80.60	1.52	\$54,004

Project No. 2: ROAD IMPROVEMENT:

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Length/Mile</u>	<u>Cost</u>
	11-12, 13-14, 15-16	619.90	11.74	\$220,582
	17-18, 19-110, 111-112			
TOTALS			11.74	\$220,582

MOVE IN (Construction & Improvement Only)

	<u>Equipment</u>	<u>Length/Mile</u>	<u>Cost</u>
	Dozer (D8)		\$1,581.00
	Excavator (C330)		\$1,581.00
	Excavator (C315)		\$905.00
	Skidder (C518)		\$806.00
	Dump Truck w/ Pup (20cy) x 8		\$1,720.00
	Backhoe (C 580)		\$361.00
	Grader (14G)		\$875.00
	Vibratory Roller		\$875.00
	Water Truck (2,500 gallon)		\$214.00
TOTAL			\$8,918.00

ROAD MAINTENANCE (Construction & Improvement Only)

	<u>Length/Mile</u>	<u>Cost</u>
Keesler, Sweethome.	3.10	\$5,320.00
TOTAL		\$5,320.00

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Woody Woodpecker

NEW CONSTRUCTION: 42.40 STATIONS

0.80 MILES

ROAD: 1E to 1F(3.5), 1G to 1H(14), 1I to 1J(1.25), 1K to 1L(15.15)

Dirt Construction: 38.20 STATIONS

0.72 MILES

POINTS: 1M to 1N(1), 4A to 4B(7.5)Rock 1A to 1B(34.2), 1C to 1D(4)Dirt

CLEARING & GRUBBING

Method	Acres/amount	x	Rate	=	Cost
Clear & Scatter per acre	6.50	x	\$ 1,503.00	=	\$9,769.50

SUB TOTAL FOR CLEARING & GRUBBING

\$9,770

EXCAVATION

	Material	Cy/amount	x	Rate	=	Cost
1A to 1B						
	Drift up to 200' \$/sta	12.20	x	\$214.00	=	\$2,610.80
	Balanced Construction \$/sta	22.00	x	\$138.00	=	\$3,036.00
	Landing Construction \$/landing	3	x	\$438.00	=	\$1,314.00
	Fill compaction \$/yd	2,350	x	\$0.79	=	\$1,856.50
1C to 1D	Balanced Construction \$/sta	4	x	\$138.00	=	\$552.00
1E to 1F	Balanced Construction \$/sta	4	x	\$138.00	=	\$483.00
	Landing Construction \$/landing	1	x	\$438.00	=	\$438.00
1G to 1H	Balanced Construction \$/sta	14	x	\$138.00	=	\$1,932.00
	Landing Construction \$/landing	4	x	\$438.00	=	\$1,752.00
1I to 1J	Balanced Construction \$/sta	1	x	\$138.00	=	\$172.50
1K to 1L	Balanced Construction \$/sta	5.15	x	\$138.00	=	\$710.70
	Drift up to 200' \$/sta	10	x	\$214.00	=	\$2,140.00
	Cut Slope Rounding \$/sta	3	x	\$49.00	=	\$147.00
	Fill Compaction \$/yd	1,800	x	\$0.79	=	\$1,422.00
	Landing Construction \$/sta	1	x	\$438.00	=	\$438.00
1M to 1N	Balanced Construction \$/sta	1	x	\$138.00	=	\$138.00
	Landing Construction \$/sta	1	x	\$438.00	=	\$438.00
4A to 4B	Balanced Construction \$/sta	8	x	\$138.00	=	\$1,083.30
	Landing Construction \$/sta	1	x	\$438.00	=	\$438.00

SUB TOTAL FOR EXCAVATION

\$21,102

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
1K to 1L									
7+00	18" CPP	30	\$21.95	\$658.50					
4A to 4B									
4+00	18" CPP	30	\$21.95	\$658.50					

	Description	Quantity	Rate	Cost
Other/miscellaneous:				
Culvert stakes & markers:	Culvert markers (6' x 2 1/2" white carsonite)	2	\$23.00	\$46.00

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION

\$1,363

Subtotal of Clearing, Exc., Culv.

\$32,234

SURFACING				Stations/ amount		x	Rate/ sta/amt	Cost
Subgrade prep: Description								
Grade, Shape and Ditch 16'				23.65		x	\$27.91	\$660.07
Subgrade Compaction				23.65		x	\$22.69	\$536.62
Grade, Shape and Outslope 14'				56.95		x	\$20.63	\$1,174.88
Subgrade Compaction(1E to 1F, 1G-1H, 1I-1J)				18.75		x	\$20.63	\$386.81

ROAD SEGMENT 1A to 1B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1A to 1B		0+00				
				Volume (CY) per		Number of				
Junction Rock	4"-0" crushed	0+00	N/A	Junction	22	Junctions	1	22	\$4.77	\$105
Junction Rock	1 1/2"-0" crushed	0+00	N/A	Junction	11	Junctions	1	11	\$4.77	\$52
Total Rock for Road Segment:				1A to 1B				33		

\$157

ROAD SEGMENT 1E to 1F				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1E to 1F		0+00 to 3+50				
				Volume (CY) per		Number of				
Base Rock	4"-0" crushed	0+00 - 3+50	8	station	50	stations	3.5	175	\$4.77	\$835
Landings	6"-0" pit-run	2+30, 3+50	N/A	Landing	66	Landings	2	132	\$5.16	\$681
Total Rock for Road Segment:				1E to 1F				307		

\$1,516

ROAD SEGMENT 1G to 1H				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1G to 1H		0+00 to 14+00				
				Volume (CY) per		Number of				
Base Rock	4"-0" crushed	0+00 - 14+00	8	station	50	stations	14	700	\$4.77	\$3,339
Junction Rock	4"-0" crushed	0+00	N/A	Junction	22	Junctions	1	22	\$4.77	\$105
Junction Rock	1 1/2"-0" crushed	0+00	N/A	load	11	loads	1	11	\$4.77	\$52
Landings	6"-0" pit-run	5+00, 9+50, 12+25, 14+00	N/A	Landing	66	Landings	4	264	\$5.16	\$1,362
Total Rock for Road Segment:				1G to 1H				997		

\$4,859

ROAD SEGMENT 1I to 1J				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1I to 1J		0+00 to 1+25				
				Volume (CY) per		Number of				
Base Rock	4"-0" crushed	0+00 - 1+25	8	station	50	stations	1.25	63	\$4.77	\$298
Junction Rock	4"-0" crushed	0+00	N/A	Junction	22	Junctions	1	22	\$4.77	\$105
Landings	6"-0" pit-run	1+25	N/A	Landing	66	Landings	1	66	\$5.16	\$341
Total Rock for Road Segment:				1I to 1J				151		

\$744

ROAD SEGMENT 1K to 1L				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1K to 1L		0+00 to 15+15				
				Volume (CY) per		Number of				
Base Rock	4"-0" crushed	0+00 - 15+15	8	station	50	stations	15.15	758	\$4.77	\$3,613
Junction Rock	4"-0" crushed	0+00	N/A	Junction	22	Junctions	1	22	\$4.77	\$105
Junction Rock	1 1/2"-0" crushed	0+00	N/A	Junction	11	Junctions	1	11	\$4.77	\$52
Turnarounds	4"-0" crushed	5+40, 14+00	N/A	TA	22	TA's	2	44	\$4.77	\$210
Turnouts	4"-0" crushed	2+00, 6+70	N/A	TO	33	TO's	2	66	\$4.77	\$315

\$157

\$1,516

\$4,859

\$744

Traction Rock	1 1/2"-0" crushed	7+00 - 14+00	2	station	13	stations	7	91	\$4.77	\$434	
Landings	6"-0" pit-run	15+15	N/A	Landing	66	Landings	1	66	\$5.16	\$341	
Total Rock for Road Segment:			1K to 1L					1,058			\$4,295
ROAD SEGMENT			1M to 1N		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1M to 1N		0+00 to 1+00					
				Volume (CY) per		Number of					
Base Rock	4"-0" crushed	0+00 - 1+00	8	station	50	stations	1	50	\$4.77	\$239	
Landings	6"-0" pit-run	1+00	N/A	Landing	66	Landings	1	66	\$5.16	\$341	
Total Rock for Road Segment:			1M to 1N					116			\$579
ROAD SEGMENT			4A to 4B		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	4A to 4B		0+00 to 7+85					
				Volume (CY) per		Number of					
Base Rock	4"-0" crushed	0+00 - 7+85	8	station	50	stations	7.85	393	\$4.77	\$1,872	
Junction Rock	4"-0" crushed	0+00	N/A	Junction	22	Junctions	1	22	\$4.77	\$105	
Junction Rock	1 1/2"-0" crushed	0+00	N/A	Junction	11	Junctions	1	11	\$4.77	\$52	
Turnarounds	4"-0" crushed	6+10	N/A	TA	22	TA's	1	22	\$4.77	\$105	
Traction Rock	1 1/2"-0" crushed	0+00 - 7+00	2	station	13	stations	7	91	\$4.77	\$434	
Subgrade Reinforcement	6"-0" pit-run	6+85 - 7+85	8	station	50	stations	1	50	\$5.16	\$258	
Landings	6"-0" pit-run	7+00	N/A	Landing	110	Landings	1	88	\$5.16	\$454	
Total Rock for Road Segment:			4A to 4B					677			\$3,281
Processing:											
Description								No.sta	Rate/sta	Cost	
Water, Process & Compact Base Rock (4"-0"):								42.4	\$63.48	\$2,691.55	
Water, Process & Compact Traction Rock:								14	\$63.48	\$888.72	
					6"-0"pr	4"-0"crushed	1 1/2"-0"crushed		Total		
SUB TOTAL FOR SURFACING					732	2,380	226		3,338	3,338	\$21,769
SPECIAL PROJECTS											
Description								Cost			
SUB TOTAL FOR SPECIAL PROJECTS											\$0
GRAND TOTAL											\$54,004

Compiled By: Bryce Rodgers

Date: 02/12/2019

Subtotal of Surfacing & Spec. Proj. \$21,769
Subtotal of Clearing, Exc., Culv. \$32,234

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Woody Woodpecker
ROAD: I1-I2(475+00), I3-I4(43+50), I5-I6(12+50),
POINTS: I7-I8(11+35), I9-I10(41+35), I11-I12(36+20)

NEW CONSTRUCTION: STATIONS 0.00 MILES
IMPROVEMENT: 619.90 STATIONS 11.74 MILES

CLEARING & GRUBBING

Method	Acres/amount	x	Rate	=	Cost
I7 to I8					
0+00 - 11+35 Reopen road					
C315 (hrs.)	3.0	x	\$114.00	=	\$342.00
D.truck (hrs.)	3.0	x	\$89.00	=	\$267.00
SUB TOTAL FOR CLEARING & GRUBBING					\$609

EXCAVATION

Material	Cy/amount	x	Rate	=	Cost
I1 to I2					
43+70 - 44+40 Improve and clean bridge deck, wingwalls, and bridge / road interface.					
C315 (hrs.)	5.0	x	\$114.00	=	\$570.00
D.truck (hrs.)	5.0	x	\$89.00	=	\$445.00
Labor 2x (hrs.)	10.0	x	\$90.00	=	\$900.00
124+00 - 124+50 Improve and clean bridge deck, wingwalls, and bridge / road interface.					
C315 (hrs.)	5.0	x	\$114.00	=	\$570.00
D.truck (hrs.)	5.0	x	\$89.00	=	\$445.00
Labor 2x (hrs.)	10.0	x	\$90.00	=	\$900.00
154+40 - 155+40 Reestablish and clear ditchline					
C315 (hrs.)	2.0	x	\$114.00	=	\$228.00
D.truck (hrs.)	2.0	x	\$89.00	=	\$178.00
155+40 Install rock ditch filter (2x) C315 (hrs.)	2.0	x	\$114.00	=	\$228.00
155+40 - 156+70 Improve and clean bridge deck, and bridge/ road interface.					
C315 (hrs.)	5.0	x	\$114.00	=	\$570.00
D.truck (hrs.)	5.0	x	\$89.00	=	\$445.00
Labor 2x (hrs.)	10.0	x	\$90.00	=	\$900.00
156+70 Install rock ditch filter (2x) C315 (hrs.)	2.0	x	\$114.00	=	\$228.00
156+70 - 157+70 Reestablish and clear ditchline					
C315 (hrs.)	2.0	x	\$114.00	=	\$228.00
D.truck (hrs.)	2.0	x	\$89.00	=	\$178.00
190+60 Remove roadside berm and construct ditchout right					
C315 (hrs.)	3.0	x	\$114.00	=	\$342.00
205+65 Install catch basin and extended ditchout					
C315 (hrs.)	3.0	x	\$114.00	=	\$342.00
206+45 Install rock ditch filter (4x), Install swale / settling basins inside of curve					
C315 (hrs.)	8.0	x	\$114.00	=	\$912.00
207+00 - 207+70 Improve and clean bridge deck, wingwalls, and bridge / road interface.					
C315 (hrs.)	5.0	x	\$114.00	=	\$570.00
D.truck (hrs.)	5.0	x	\$89.00	=	\$445.00
Labor 2x (hrs.)	10.0	x	\$90.00	=	\$900.00
207+70 - 211+40 Road reconstruction					
Endhaul excavation (\$/cy)	1,080.0	x	\$4.50	=	\$4,860.00
Waste material compaction (\$/cy)	1,080.0	x	\$0.45	=	\$486.00
208+30 Install extended ditchout and sediment basins					
C315 (hrs.)	8.0	x	\$114.00	=	\$912.00
209+75 Install culvert outlet dissipator C315 (hrs.)	2.0	x	\$114.00	=	\$228.00
Reconstruct / regrade inside of road junction curve					
C315 (hrs.)	4.0	x	\$114.00	=	\$456.00
D.truck (hrs.)	4.0	x	\$89.00	=	\$356.00
240+10 Clean out culvert catch basin and inlet					
C315 (hrs.)	2.0	x	\$114.00	=	\$228.00
D.truck (hrs.)	2.0	x	\$89.00	=	\$178.00
254+20 Install culvert outlet dissipator C315 (hrs.)	3.0	x	\$114.00	=	\$342.00
264+50 - 264+80 Improve and clean bridge deck, wingwalls, and bridge / road interface.					
C315 (hrs.)	5.0	x	\$114.00	=	\$570.00
D.truck (hrs.)	5.0	x	\$89.00	=	\$445.00
Labor 2x (hrs.)	10.0	x	\$90.00	=	\$900.00
285+05 Install rock ditch filter (4x) C315 (hrs.)	4.0	x	\$114.00	=	\$456.00
300+05 Install rock ditch filter (2x) C315 (hrs.)	2.0	x	\$114.00	=	\$228.00
I3 to I4					
3+00 Improve culvert outlet C315 (hrs.)	1.0	x	\$114.00	=	\$114.00
5+70 - 8+20 Cutslope and ditchline reestablishment					
C315 (hrs.)	3.0	x	\$114.00	=	\$342.00

	D.truck (hrs.)	3.0	x	\$89.00	=	\$267.00
12+70	Develop waste area and borrow site					
	C315 (hrs.)	2.0	x	\$89.00	=	\$178.00
17+20	Culvert / fill replacement, Waterhole improvement					\$8,687.49 *see cost sheet*
17+60	Construct water truck access pad					
	C315 (hrs.)	4.0	x	\$114.00	=	\$456.00
	D.truck (hrs.)	4.0	x	\$89.00	=	\$356.00
17+75	Install culvert outlet dissipator	C315 (hrs.) 3.0	x	\$114.00	=	\$342.00
19+70	Install culvert outlet dissipator and inlet armor					
	C315 (hrs.)	3.0	x	\$114.00	=	\$342.00
19+70-20+50	Ditchline armoring	C315 (hrs.) 3.0	x	\$114.00	=	\$342.00
21+25	Install culvert outlet dissipator	C315 (hrs.) 3.0	x	\$114.00	=	\$342.00
22+00	Install rock ditch filter (2x)	C315 (hrs.) 2.0	x	\$114.00	=	\$228.00
39+50	Construct truck turnaround	C315 (hrs.) 2.0	x	\$114.00	=	\$228.00
	D.truck (hrs.)	2.0	x	\$89.00	=	\$178.00
43+50	Remove Alder / improve landing					
	C315 (hrs.)	2.0	x	\$114.00	=	\$228.00
	D.truck (hrs.)	2.0	x	\$89.00	=	\$178.00
I5 to I6						
12+50	Remove Alder / improve landing					
	C315 (hrs.)	2.0	x	\$114.00	=	\$228.00
	D.truck (hrs.)	2.0	x	\$89.00	=	\$178.00
I9 to I10						
0+00 - 41+35	Spot ditchline reestablishment					
	C315 (hrs.)	5.0	x	\$114.00	=	\$570.00
21+95	Install culvert outlet dissipator	C315 (hrs.) 3.0	x	\$114.00	=	\$342.00
32+05	Install culvert outlet dissipator	C315 (hrs.) 3.0	x	\$114.00	=	\$342.00
35+10	Fill replacement					\$13,014.24 *see cost sheet*
I11 to I12						
0+00 - 36+20	Ditchline reestablishment and clearing					
	C315 (hrs.)	5.0	x	\$114.00	=	\$570.00
17+65	Catch basin cleanout	C315 (hrs.) 2.0	x	\$114.00	=	\$228.00
36+20	Improve landing	C315 (hrs.) 5.0	x	\$114.00	=	\$570.00
SUB TOTAL FOR EXCAVATION						\$50,020

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
I1 to I2					I5 to I6				
208+30	18"/CPP	50	\$21.95	\$1,097.50	2+55	18"/CPP	30	\$21.95	\$658.50
209+75	18"/CPP	40	\$21.95	\$878.00	I9 to I10				
235+40	18"/CPP	30	\$21.95	\$658.50	5+60	18"/CPP	30	\$21.95	\$658.50
254+20	18"/CPP	30	\$21.95	\$658.50	21+95	18"/CPP	30	\$21.95	\$658.50
I3 to I4					32+05	18"/CPP	30	\$21.95	\$658.50
9+00	18"/CPP	40	\$21.95	\$878.00	35+10	42"/ACSP, 14g	60	\$0.00	*see cost sheet*
17+20	30"/ACSP, 14g	60	\$5.16	*see cost sheet*					
17+75	18"/CPP	30	\$21.95	\$658.50					
19+70	18"/CPP	30	\$21.95	\$658.50					

	Description	Quantity	Rate	Cost
Other/miscellaneous:	Hand Seeding Exposed Soils (\$/Ac.)	1.50	\$706.00	\$1,059.00
	Mulching Exposed Soils (\$/Bale)	30	\$12.06	\$361.80
Culvert stakes & markers:				
	Culvert markers (6' x 2 1/2" white carsonite)	27	\$23.00	\$621.00
SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION				\$10,163
Subtotal of Clearing, Exc., Culv.				\$60,792

SURFACING					Stations/ amount		Rate/ sta/amt		Cost			
Subgrade prep:					Description							
					Grade, Shape and Ditch 16' (I1-I2, I3-I4, I5-I6, I7-I8, I9-I10, I11-I12)		619.90		x \$27.91 \$17,301.41			
					Subgrade Compaction (I1-I2, I3-I4, I5-I6, I7-I8, I9-I10, I11-I12)		619.90		x \$22.69 \$14,065.53			
					Sod Removal, grader and backhoe: (I3-I4, I5-I6, I7-I8, I11-I12)(103.55 Sta.)		103.55		x \$36.28 \$3,756.79			
ROAD SEGMENT I1 to I2					POINT TO POINT I1 to I2		Sta. to Sta. 0+00 to 475+00		TOTAL VOLUME (CY)		Rate/ Sta./ amt.	Cost
Application		Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of					
Subgrade Leveling Rock		1 1/2"-0" crushed	0+00 - 475+00	N/A	load	11	loads	35	385	\$4.77	\$1,836	
Surfacing		1 1/2"-0" crushed	0+00 - 157+60	2	station	13	stations	157.6	2,049	\$4.77	\$9,773	
Surfacing		1 1/2"-0" crushed	158+85 - 475+00	4	station	25	stations	316.15	7,904	\$4.77	\$37,701	
Turnouts		1 1/2"-0" crushed	As Marked in Field	4	turnout	11	turnouts	72	792	\$4.77	\$3,778	
			123+30, 222+00, 229+65, 259+70, 317+80, 321+20, 348+95, 367+90, 371+65, 385+75, 413+60, 422+50,									
Junctions		1 1/2"-0" crushed	433+55	N/A	junction	11	junctions	13	143	\$4.77	\$682	
Curve Improvement		1 1/2"-0" crushed	206+00, 222+00	N/A	curve	33	curves	2	66	\$4.77	\$315	
			43+70, 44+40, 124+00, 124+50, 157+60, 158+85, 207+00, 264+50, 264+80	N/A	interface	22	interfaces	9	198	\$4.77	\$944	
Bridge Interface Improvement		1 1/2"-0" crushed	208+30, 209+85, 235+40, 254+20	N/A	culvert	44	culverts	4	176	\$4.77	\$840	
Culvert Bedding and Backfill		1 1/2"-0" crushed	207+70 - 211+40	4	station	25	stations	3.7	93	\$4.77	\$441	
			43+70, 44+40, 124+00, 124+50, 157+60, 158+85, 207+00, 264+50, 264+80	N/A	interface	22	interfaces	9	198	\$4.77	\$944	
Bridge Interface Improvement		4"-0" crushed	254+20	N/A	culvert	22	culverts	1	22	\$4.77	\$105	
Culvert Bedding and Backfill		4"-0" crushed	207+70 - 211+40	8	station	50	stations	3.7	185	\$4.77	\$882	
Road Reconstruction Subgrade		4"-0" crushed	157+60, 158+85, 206+45, 265+05, 330+05	N/A	3 filter series	11	3 filter series	8	88	\$5.16	\$454	
Rock Ditch Filters		6"-4" pit-run	209+75, 254+20	N/A	dissipator	22	dissipators	2	44	\$5.16	\$227	
Culvert Energy Dissipator		24"-6" rip rap	206+45, 208+30	N/A	load	11	loads	6	66	\$5.16	\$341	
Settling Basin		24"-6" rip rap	222+00	N/A	curve	11	curves	1	11	\$5.16	\$57	
Curve Improvement		48"-24" rip rap										
Total Rock for Road Segment:					I1 to I2				12,419			
ROAD SEGMENT I3 to I4					POINT TO POINT I3 to I4		Sta. to Sta. 0+00 to 43+50		TOTAL VOLUME (CY)		Rate/ Sta./ amt.	Cost
Application		Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of					
Culvert Bedding and Backfill		1 1/2"-0" crushed	9+00, 17+75, 19+70	N/A	culvert	33	culverts	3	99	\$4.77	\$472	
Culvert Bedding and Backfill		1 1/2"-0" crushed	17+20	N/A	load	11	loads	5	55	\$4.77	*See Cost Sheet*	
Fill Road Reconstruction		4"-0" crushed	17+20	N/A	load	11	loads	5	55	\$4.77	*See Cost Sheet*	
Subgrade Leveling Rock		4"-0" crushed	0+00 - 42+70	N/A	load	11	loads	6	66	\$4.77	\$315	
Subgrade Reinforcement		4"-0" crushed	18+30 - 22+00	N/A	load	11	loads	10	110	\$4.77		
Surfacing		4"-0" crushed	0+00 - 43+50	4	station	25	stations	43.5	1,088	\$4.77	\$5,187	
			3+80, 16+70, 31+80, 38+00	4	turnout	11	turnouts	4	44	\$4.77	\$210	
Turnouts		4"-0" crushed	23+40	N/A	load	11	loads	2	22	\$4.77	\$105	
Junctions		4"-0" crushed	39+50	10	turnaround	17	turnarounds	1	17	\$4.77	\$81	
Turnaround		4"-0" crushed	17+20	12	load	11	loads	3	33	\$5.16	*See Cost Sheet*	
Culvert Bedding Base		6"-0" pit-run	17+60	N/A	load	11	loads	5	55	\$5.16	\$284	
Water Truck Access Pad		6"-0" pit-run	19+70 - 20+50	N/A	load	11	loads	3	33	\$5.16	\$170	
Culvert inlet and ditchline		6"-0" pit-run	42+70	N/A	load	11	loads	7	77	\$5.16	\$397	
					3 filter series	11	3 filter series	1	11	\$5.16	\$57	
Rock Ditch Filters		6"-4" pit-run	17+75, 19+70, 21+25	N/A	dissipator	22	dissipators	3	66	\$5.16	\$341	
Culvert Energy Dissipator		24"-6" rip rap										

Fill Armor	24"-6" rip rap	17+20	N/A	load	11	loads	11	121	\$5.16	*See Cost Sheet*
Large Culvert Energy Dissipat	24"-6" rip rap	17+20	N/A	load	11	loads	4	44	\$5.16	*See Cost Sheet*
Total Rock for Road Segment:		I3 to I4						1,996		\$7,619
ROAD SEGMENT I5 to I6				POINT TO POINT I5 to I6		Sta. to Sta. 0+00 to 12+50		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of				
Culvert Bedding and Backfill	1 1/2"-0" crushed	2+55	N/A	culvert	33	culverts	1	33	\$4.77	\$157
Subgrade Leveling Rock	4"-0" crushed	0+00 - 12+50	N/A	load	11	loads	4	44	\$4.77	\$210
Surfacing	4"-0" crushed	0+00 - 12+50	4	station	25	stations	12.5	313	\$4.77	\$1,491
Turnouts	4"-0" crushed	4+40, 6+90	4	turnout	11	turnouts	2	22	\$4.77	\$105
Landing Improvement	6"-0" pit-run	12+50	N/A	load	11	loads	7	77	\$5.16	\$397
Total Rock for Road Segment:		I5 to I6						489		\$2,360
ROAD SEGMENT I9 to I10				POINT TO POINT I9 to I10		Sta. to Sta. 0+00 to 41+35		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of				
Subgrade Leveling Rock	1 1/2"-0" crushed	0+00 - 41+35	N/A	load	11	loads	5	55	\$4.77	\$262
Surfacing	1 1/2"-0" crushed	0+00 - 41+35	2	station	13	stations	41.35	538	\$4.77	\$2,564
		2+90, 16+60,								
Turnouts	1 1/2"-0" crushed	28+10, 30+60,	2	turnout	6	turnouts	4	24	\$4.77	\$114
Junctions	1 1/2"-0" crushed	0+00	N/A	load	11	loads	2	22	\$4.77	\$105
		5+60, 21+95,								
Culvert Bedding and Backfill	1 1/2"-0" crushed	32+05	N/A	culvert	33	culverts	3	99	\$4.77	\$472
Culvert Bedding and Backfill	1 1/2"-0" crushed	35+10	N/A	load	11	loads	7	77	\$4.77	*See Cost Sheet*
Fill Road Reconstruction	1 1/2"-0" crushed	35+10	N/A	load	11	loads	2	22	\$4.77	*See Cost Sheet*
Fill Road Reconstruction	4"-0" crushed	35+10	N/A	load	11	loads	3	33	\$4.77	*See Cost Sheet*
Culvert Bedding Base	6"-0" pit-run	35+10	12	load	11	loads	4	44	\$5.16	*See Cost Sheet*
Fill Armor	24"-6" rip rap	35+10	N/A	load	11	loads	11	121	\$5.16	*See Cost Sheet*
Large Culvert Energy Dissipat	24"-6" rip rap	35+10	N/A	load	11	loads	4	44	\$5.16	*See Cost Sheet*
Culvert Energy Dissipator	24"-6" rip rap	21+95, 32+05	N/A	dissipator	22	dissipators	2	44	\$5.16	\$227
Total Rock for Road Segment:		I9 to I10						1,123		\$3,745
ROAD SEGMENT I11 to I12				POINT TO POINT I11 to I12		Sta. to Sta. 0+00 to 36+20		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of				
Surfacing	1 1/2"-0" crushed	7+30 - 26+20	2	station	13	stations	18.9	246	\$4.77	\$1,172
Turnouts	1 1/2"-0" crushed	11+65, 18+65	2	turnout	11	turnouts	2	22	\$4.77	\$105
Junctions	1 1/2"-0" crushed	7+65	2	turnout	11	turnouts	1	11	\$4.77	\$52
Landing Improvement	6"-0" pit-run	36+20	N/A	load	11	loads	5	55	\$5.16	\$284
Total Rock for Road Segment:		I11 to I12						334		\$1,613
Processing:										
Description								No.sta	Rate/sta	Cost
Water, Process & Compact: (I1-I2, I3-I4, I5-I6, I9-I10, I11-I12)								608.55	\$63.48	\$38,631
Base Rock Compaction, 2 lifts (I1-I2 (207+70-211+40))								7.40	\$63.48	\$470
SUB TOTAL FOR SURFACING	48"-24" rr	24"-6" rr	12"-6" rr	6"-4" pr	6"-0"pr	4"-0" crushed	1 1/2"-0" crushed	2"-1" drainrock	3/4"-0" crushed	Total
	11	550		99	374	2,218	13,107		16,359	\$148,882
SPECIAL PROJECTS										
Description								Cy/Amount	Rate	Cost
Engineered emulsion application (I1 to I2) **See Cost Sheet**										\$0.00
(\$/Sta.)								26.55	\$410.83	\$10,907.50
SUB TOTAL FOR SPECIAL PROJECTS										\$10,908
								Subtotal of Surfacing & Spec. Proj.		\$159,790
								Subtotal of Clearing, Exc., Culv.		\$60,792
GRAND TOTAL										\$220,582

Compiled By: W. Lawrence

Date: 03/11/2019

Fill Reconstruction Cost Estimate

Woody Woodpecker

Will Lawrence

12/28/2018

Segment: I3 to I4
Fill: 1Station: 17+20
Height: 14

Materials	Quantity		\$	Total
30"x60', 14ga, ACSP (includes bands and delivery)	60		\$39.08	\$2,344.80
24"-6" Riprap Dissipator	44	cy	\$5.16	\$227.04
24"-6" Riprap Fill Armor	110	cy	\$5.16	\$567.60
6"-0" Pit-run rock for culvert base	22	cy	\$5.16	\$113.52
1 1/2"-0" Crushed Rock for Bedding/Backfill	44	cy	\$4.77	\$209.88
4"-0" Crushed Rock for Road	33	cy	\$4.77	\$157.41
1 1/2"-0" Crushed Rock for Road	22	cy	\$4.77	\$104.94
Erosion Control	0.2	ac	\$829.00	\$165.80
Mulch and seed	10	bales	\$12.06	\$120.60

\$3,890.99

Excavation	Rate		CY/amount	Total
End-Haul excavation \$/cy				
Excavate Fill and Culvert Base	\$4.50		475	\$2,137.50
Backfill from barrow site	\$4.50		158	\$712.50
Compaction				
Backfill (barrow & crushed rock)	\$0.79		475	\$375.25
Waste material compaction	\$0.45		158	\$71.25
Fill armor placement w/330, \$/hr	\$175.00		6	\$1,050.00
Laborer \$/hr	\$45.00		10	\$450.00

\$4,796.50

Project Total	\$8,687
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Fill Reconstruction Cost Estimate

Woody Woodpecker

Will Lawrence

02/12/2019

Segment: I9 to I10

Station: 35+10

Fill: 2

Height: 12

Materials	Quantity		\$	Total
42"x60', 14ga, ACSP (includes bands and delivery)	60		\$49.34	\$2,960.40
24"-6" Riprap Dissipator	55	cy	\$5.16	\$283.80
24"-6" Riprap Fill Armor	99	cy	\$5.16	\$510.84
6"-0" Pit-run rock for culvert base	22	cy	\$5.16	\$113.52
1 1/2"-0" Crushed Rock for Bedding/Backfill	44	cy	\$4.77	\$209.88
4"-0" Crushed Rock for Road	33	cy	\$4.77	\$157.41
1 1/2"-0" Crushed Rock for Road	22	cy	\$4.77	\$104.94
Erosion Control	0.05	ac	\$829.00	\$41.45
Mulch and seed	10	bales	\$12.06	\$120.60

\$4,382.24

Excavation	Rate	CY/amount	Total
Excavation \$/cy			
Excavate Fill and Culvert Base	\$3.93	650	\$2,554.50
Backfill from barrow site	\$3.93	217	\$851.50
Waste and Borrow material haul	\$3.90	867	\$3,380.00
Compaction			
Backfill (barrow & crushed rock)	\$0.79	650	\$513.50
Waste material compaction	\$0.45	217	\$97.50
Fill armor placement w/330, \$/hr	\$175.00	5	\$875.00
Laborer \$/hr	\$45.00	8	\$360.00

\$8,632.00

Project Total	\$13,014
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Timber Sale Contract

341-19-35

Woody Woodpecker

Engineered Emulsion Road Surface Topical Application Cost (22.0 Sta.)

Road Segment I1 to I2	Gallons	Hours	Hours	Hours	Hours	Hours
Concentrate product	585					
Distributer Truck		10				
Material Transport			10			
Roller w/ Approved Mister				10		
Technical Advisor					20	
Labor						10

Total Quantity	585	10	10	10	20	10
Hourly Rate		\$200	\$125	\$85	\$100	\$50
Quantity Rate	\$4.50					
Move in Rate		\$800		\$875		

Project Cost	\$2,632.50	\$2,800.00	\$1,250.00	\$1,725.00	\$2,000.00	\$500.00
Total Project Cost:						\$10,907.50

Compiled by: W. Lawrence
01/28/2019

**Woody Woodpecker
Vacating Costs V1 to V2**

Work Description	Station	Pump	C330	D24 trk	D10/12 trk	D-8	Labor	Straw-bales	Seed-lbs
V1 to V2									
Walk equipment to back end of project.			4.00						
Haul off old culverts					2.00				
V1: Road block / waterbar	0+00		1.00				0.5	4	2
Remove existing culvert, install waterbar	3+25		1.50				0.50	2	1
Remove existing culvert, install waterbar	8+50		1.50				0.50	2	1
Install waterbar	11+35		0.50						
Remove existing culvert, install waterbar	14+95		1.50				0.50	2	1
Install waterbar	19+15		0.50						
Remove existing fill, culvert, and culvert flume	19+65		3.50				1.00	4	2
Sidecast pullback	20+65		3.00				1.00	4	2
Install waterbar	24+15		0.50						
Install long waterbar	26+35		1.00						
Remove existing fill and culvert	27+25		2.00				1.00	4	2
Install waterbar	29+15		0.50						
Install waterbar	31+05		0.50						
V2: Install waterbar	32+95		0.50						
Total Quantity (Hours)		0.00	22.00	0	2	0	5	22	11
Rates		\$12.00	\$175.00	\$143.00	\$89.00	\$178.00	\$45.00	\$12.06	\$1.80
Total Dollars		\$0	\$3,850	\$0	\$178	\$0	\$225	\$265	\$20

Total Cost

\$4,538

Projects Road Maintenance Cost Summary

Sale: Woody Woodpecker
Date: 13-Feb-19
By: W. Lawrence

Type	Equipment/Rationale			Hours	Rate	Cost
Project Work	Grader 14G			12	\$113	\$1,401
Final Haul	Dump Truck 12CY			10	\$89	\$890
Road	FE Loader C966			10	\$94	\$940
Maintenance	Vibratory Roller			12	\$87	\$1,079
	Water Truck 2,500 gallon			10	\$101	\$1,010
Total						\$5,320

Production Rates

Grader

Vibratory Roller

Miles/day	Distance(miles)	Days
1.5	6.60	4.4
1.5	6.60	4.4

NOTE: Rector Ridge Quarry to Point I2	2.00	Miles
I9 to I10, 35+10 Waste and Borrow material haul	1.10	Miles
(Sweethome Road)		
TOTAL=	3.10	Miles

SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

PROJECT NO. <u>3</u>	Timber Sale Name: <u>Woody Woodpecker</u>
Quarry: <u>Rector Ridge</u>	Swell: <u> </u>
Location: <u>Sw 1/4, Sec. 4, T3N, R8W</u>	Shrink: <u>16%</u>
County: <u>Tillamook</u>	
By: <u>Will Lawrence</u>	Loading Hopper: <u>No</u>
Date: <u>03/11/2019</u>	

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"	5%	CR		0	0
1-1/2"-0"	5%	CR		13,333	13,333
4"-0"	5%	CR	5,000	4,598	10,398
6"-0", 6"-4"		PR		1,205	1,205
24"-6"		RR		550	550
48"-24"		RR		11	11
TOTAL CUBIC YARDS OF ROCK:			5,000	19,697	25,497

1) MOBILIZATION & SET UP:

EQUIPMENT	QUANTITY	RATE	COST	EQUIPMENT	QUANTITY	RATE	COST
Screening Plants	1	\$622	\$622	Off Highway Dump Truck	2	\$622	\$1,244
D8 Cat	1	\$1,581	\$1,581	Excavator (C330)	1	\$1,581	\$1,581
D6 Cat	1	\$875	\$875	Excavator (C568)	1	\$1,686	\$1,686
Drill & Compressor	2	\$1,581	\$3,162	3 Stage Crusher	1	\$3,250	\$3,250
Powder	2	\$395	\$790	Loader	1	\$1,581	\$1,581
SUB TOTAL FOR MOBILIZATION				\$16,372			

EQUIPMENT SET UP	TIMES	RATE	COST
3 Stage Crusher	1	\$3,866	\$3,866
Screening Plants	1	\$330	\$330
Original Calibration	1	\$612	\$612
SUB TOTAL FOR SET UP COSTS		\$4,808	

TOTAL MOBILIZATION & SET UP COSTS \$21,180

2) CLEARING & GRUBBING

DESCRIPTION	QUANTITY	UNIT	RATE	COST
Clearing, Grubbing, Quarry Opening				
C568	100	hr	\$189	\$18,900
C330	100	hr	\$175	\$17,500
Off Highway Dump Truck	20	hr	\$143	\$2,860
Pile & Burn (slash & stumps)				
C330	40	hr	\$175	\$7,000
Move-in Fire Truck for the burning of the Clearing Debris	1	ea	\$214	\$214

TOTAL CLEARING & GRUBBING COSTS \$46,474

SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

PROJECT NO. <u>3</u>	Timber Sale Name: <u>Woody Woodpecker</u>
Quarry: <u>Rector Ridge</u>	Swell: _____
Location: <u>Sw 1/4, Sec. 4, T3N, R8W</u>	Shrink: <u>16%</u>
County: <u>Tillamook</u>	
By: <u>Will Lawrence</u>	Loading Hopper: <u>No</u>
Date: <u>03/11/2019</u>	

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"	5%	CR		0	0
1-1/2"-0"	5%	CR		13,333	13,333
4"-0"	5%	CR	5,000	4,598	10,398
6"-0", 6"-4"		PR		1,205	1,205
24"-6"		RR		550	550
48"-24"		RR		11	11
TOTAL CUBIC YARDS OF ROCK:			5,000	19,697	25,497

1) MOBILIZATION & SET UP:

EQUIPMENT	QUANTITY	RATE	COST	EQUIPMENT	QUANTITY	RATE	COST
Screening Plants	1	\$622	\$622	Off Highway Dump Truck	2	\$622	\$1,244
D8 Cat	1	\$1,581	\$1,581	Excavator (C330)	1	\$1,581	\$1,581
D6 Cat	1	\$875	\$875	Excavator (C568)	1	\$1,686	\$1,686
Drill & Compressor	3	\$1,581	\$4,743	3 Stage Crusher	1	\$3,250	\$3,250
Powder	3	\$395	\$1,185	Loader	1	\$1,581	\$1,581
SUB TOTAL FOR MOBILIZATION				\$18,348			

EQUIPMENT SET UP	TIMES	RATE	COST
3 Stage Crusher	1	\$3,866	\$3,866
Screening Plants	1	\$330	\$330
Original Calibration	1	\$612	\$612
SUB TOTAL FOR SET UP COSTS		\$4,808	

TOTAL MOBILIZATION & SET UP COSTS	\$23,156
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2) CLEARING & GRUBBING

DESCRIPTION	QUANTITY	UNIT	RATE	COST
Clearing, Grubbing, Quarry Opening				
C568	100	hr	\$189	\$18,900
C330	100	hr	\$175	\$17,500
Off Highway Dump Truck	20	hr	\$143	\$2,860
Pile & Burn (slash & stumps)				
C330	40	hr	\$175	\$7,000
Move-in Fire Truck for the burning of the Clearing Debris	1	ea	\$214	\$214

TOTAL CLEARING & GRUBBING COSTS	\$46,474
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3) EXCAVATION

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST
Overburden Removal (excavate, load haul, spread)		bcy	\$2.60	
D8	35	hr	\$178	\$6,230
C568	70	hr	\$189	\$13,230
C330	70	hr	\$175	\$12,250
Off Highway Dump Truck	70	hr	\$143	\$10,010
Off Highway Dump Truck	70	hr	\$143	\$10,010

TOTAL EXCAVATION COSTS

\$51,730

4) DEVELOP ROCK

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping	20%	5,099	\$2.20	\$11,219
crushed	23,731	93%	Drill & shoot	70%	18,678	\$2.30	\$42,961
pit run	1,205	5%	Oversize red	10%	2,494	\$5.80	\$14,463
rip rap	561	2%	Other				
Total	25,497						
reject	1,187	4.7%					

TOTAL ROCK DEVELOPMENT COSTS

\$68,642

5) CALIBRATION & TESTING

DESCRIPTION	NO.	\$/TEST	COST
Calibrate	2	\$507.00	\$1,014
Calibrate			
Test	12	\$57.30	\$680
Test			

TOTAL CALIBRATION & TESTING COSTS

\$1,694

6) FEEDING & LOADING

DESCRIPTION	CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock	24,918	\$0.85	\$21,093
Exc. & Load Shot Rock	214	\$175.00	\$37,470 (hrs. C330)
Haul to crusher	243	\$143.00	\$34,793 (hrs. off highway d.tr

TOTAL FEEDING & LOADING COSTS

\$93,356

7) ROCK CRUSHING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTION	RATE CU. YD.	TOTAL COST
3/4"-0"	crushed	0	3 stage w/s	110	\$3.54	\$0
1-1/2"-0"	crushed	13,333	3 stage w/s	120	\$3.24	\$43,221
4"-0"	crushed	10,398	2 stage w/s	140	\$2.48	\$25,772

TOTAL ROCK CRUSHING COSTS

\$68,993

8) STOCKPILING

STOCKPILE SITE PREPARATION

Equipment	Hours	Rate	Total
Dozer (D6)	3	\$128.00	\$384.00

Rock for Floor (CY)	\$/CY Haul	Total

\$384.00

SUB TOTAL \$384

HAUL & STOCKPILE

STOCKPILE LOCATION	SIZE	# of TRUCKS	CU. YDS.	RATE	COST
1. Keesler Stockpile	4"-0"	8	5,800	\$2.55	\$14,768
2.					
3.					
4.					
5.					
6.					

SUB TOTAL 5,800 \$14,768

TOTAL STOCKPILING COSTS \$15,152

9) MISCELLANEOUS COSTS

DESCRIPTION	COST
Load, Haul, and Spread the reject material at the waste area.	
\$4.25 /CY 1,187 CY	\$5,043
Quarry Prep - Safety Berms (10hr C330 @\$175.00)	\$1,750
Final Quarry Dev., Access Road Const., Waterbarring, Drainage, Block Quarry Access (8hr C330 @\$175.00)	\$1,400

TOTAL MISCELLANEOUS COSTS \$8,193

10) GRAND TOTAL: \$377,391

\$/Cubic Yard \$15.90

Footnotes:

HAUL and STOCKPILE COST

SALE NAME: Woody Woodpecker
 QUARRY: Rector Ridge

ROCK TYPE: Crushed

Location 1. Keesler Str 4"-0"	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
				0.70	0.30	0.20	0.10
Truck type: <u>D20</u> No. trucks: <u>8</u> Delay min.: <u>8</u> Efficiency: <u>85%</u> Ave haul: \$2.02 /cy Load: \$0.26 /cy Stockpile: \$0.27 /cy Truck type: <u>D12</u> No. trucks: <u> </u> Delay min.: <u>6</u> Efficiency: <u>85%</u> Production: cy/day = 3,586 Truck type: <u>D10</u> No. trucks: <u> </u> Delay min.: <u>5</u> Efficiency: <u>85%</u>							
Location 1. Keesler Stockpile			Haul and Stockpile Cost			\$2.55 /cy	

Location 2. 0 0	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
			1.00	2.30	1.80	0.60	0.10
Truck type: <u>D20</u> No. trucks: <u> </u> Delay min.: <u>8</u> Efficiency: <u>85%</u> Ave haul: #DIV/0! /cy Load: #N/A /cy Stockpile: #N/A /cy Truck type: <u>D12</u> No. trucks: <u> </u> Delay min.: <u>6</u> Efficiency: <u>85%</u> Production: cy/day = 0 Truck type: <u>D10</u> No. trucks: <u> </u> Delay min.: <u>5</u> Efficiency: <u>85%</u>							
Location 2. 0			Haul and Stockpile Cost			#DIV/0! /cy	

Location 3. 0 0	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
			1.00	2.60	2.90	0.80	0.10
Truck type: <u>D20</u> No. trucks: <u> </u> Delay min.: <u>8</u> Efficiency: <u>85%</u> Ave haul: #DIV/0! /cy Load: #N/A /cy Stockpile: #N/A /cy Truck type: <u>D12</u> No. trucks: <u> </u> Delay min.: <u>6</u> Efficiency: <u>85%</u> Production: cy/day = 0 Truck type: <u>D10</u> No. trucks: <u> </u> Delay min.: <u>5</u> Efficiency: <u>85%</u>							
Location 3. 0			Haul and Stockpile Cost			#DIV/0! /cy	

HAUL and STOCKPILE COST

Location 4. 0	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
			1.00	2.60	2.90	0.80	0.10
Truck type: <u>D20</u> No. trucks: <u> </u> Delay min.: <u>8</u> Efficiency: <u>85%</u> Truck type: <u>D12</u> No. trucks: <u> </u> Delay min.: <u>6</u> Efficiency: <u>85%</u> Truck type: <u>D10</u> No. trucks: <u> </u> Delay min.: <u>5</u> Efficiency: <u>85%</u> Ave haul: #DIV/0! /cy Load: #N/A /cy Stockpile: #N/A /cy Production: cy/day = 0							
Location 4.	0	Haul & Stockpile Cost				#DIV/0! /cy	

Location 5. 0	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
				0.70	0.30	0.20	0.10
Truck type: <u>D20</u> No. trucks: <u> </u> Delay min.: <u>8</u> Efficiency: <u>85%</u> Truck type: <u>D12</u> No. trucks: <u> </u> Delay min.: <u>6</u> Efficiency: <u>85%</u> Truck type: <u>D10</u> No. trucks: <u> </u> Delay min.: <u>5</u> Efficiency: <u>85%</u> Ave haul: #DIV/0! /cy Load: #N/A /cy Stockpile: #N/A /cy Production: cy/day = 0							
Location 5.	0	Haul & Stockpile Cost				#DIV/0! /cy	

Location 6. 0	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
				1.00	1.00		
Truck type: <u>D20</u> No. trucks: <u> </u> Delay min.: <u>15</u> Efficiency: <u>75%</u> Truck type: <u>D12</u> No. trucks: <u> </u> Delay min.: <u>12</u> Efficiency: <u>75%</u> Truck type: <u>D10</u> No. trucks: <u> </u> Delay min.: <u>10</u> Efficiency: <u>75%</u> Ave haul: #DIV/0! /cy Load: #N/A /cy Stockpile: #N/A /cy Production: cy/day = 0							
Location 6.	0	Haul & Stockpile Cost				#DIV/0! /cy	

HAUL and STOCKPILE COST

SALE NAME: Woody Woodpecker
 QUARRY: Rector Ridge

ROCK TYPE: Crushed

Location 1. Keesler Stc 4"-0"	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
				0.70	0.30	0.20	0.10
Truck type: <u>D20</u>	No. trucks: <u>8</u>						Ave haul: <u>\$2.02</u> /cy
Delay min.: <u>8</u>	Efficiency: <u>85%</u>						Load: <u>\$0.26</u> /cy
Truck type: <u>D12</u>	No. trucks: <u></u>						Stockpile: <u>\$0.27</u> /cy
Delay min.: <u>6</u>	Efficiency: <u>85%</u>						
Truck type: <u>D10</u>	No. trucks: <u></u>	Production: cy/day = <u>3,586</u>					
Delay min.: <u>5</u>	Efficiency: <u>85%</u>						
Location 1. Keesler Stockpile		Haul and Stockpile Cost					<u>\$2.55</u> /cy

Location 2. 0 0	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
			1.00	2.30	1.80	0.60	0.10
Truck type: <u>D20</u>	No. trucks: <u></u>						Ave haul: <u>#DIV/0!</u> /cy
Delay min.: <u>8</u>	Efficiency: <u>85%</u>						Load: <u>#N/A</u> /cy
Truck type: <u>D12</u>	No. trucks: <u></u>						Stockpile: <u>#N/A</u> /cy
Delay min.: <u>6</u>	Efficiency: <u>85%</u>						
Truck type: <u>D10</u>	No. trucks: <u></u>	Production: cy/day = <u>0</u>					
Delay min.: <u>5</u>	Efficiency: <u>85%</u>						
Location 2. 0		Haul and Stockpile Cost					<u>#DIV/0!</u> /cy

Location 3. 0 0	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
			1.00	2.60	2.90	0.80	0.10
Truck type: <u>D20</u>	No. trucks: <u></u>						Ave haul: <u>#DIV/0!</u> /cy
Delay min.: <u>8</u>	Efficiency: <u>85%</u>						Load: <u>#N/A</u> /cy
Truck type: <u>D12</u>	No. trucks: <u></u>						Stockpile: <u>#N/A</u> /cy
Delay min.: <u>6</u>	Efficiency: <u>85%</u>						
Truck type: <u>D10</u>	No. trucks: <u></u>	Production: cy/day = <u>0</u>					
Delay min.: <u>5</u>	Efficiency: <u>85%</u>						
Location 3. 0		Haul and Stockpile Cost					<u>#DIV/0!</u> /cy

CRUSHED ROCK COST

SALE NAME: Woody Woodpecker
PROJECT: Nos. 1 and 2
QUARRY: Rector Ridge Quarry

MATERIAL: 1 1/2"-0" and 4"-0'

DATE: 03/11/2019
BY: W. Lawrence

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
Pt. 1A	34.2	33			2.20	0.60	0.40	0.10	0.10	3.40
1E to 1F	3.50	175			2.00	0.60	0.40	0.10	0.10	3.20
1G to 1H	14.00	733			2.20	0.60	0.50	0.10	0.10	3.50
1I to 1J	1.25	85			2.20	0.60	0.50	0.10	0.10	3.50
1K to 1L	15.15	992			2.20	0.60	0.40	0.10	0.10	3.40
1M to 1N	1.00	50			2.20	0.60	0.40	0.10	0.10	3.40
4A to 4B	7.85	539			0.90	0.50	0.20	0.10	0.10	1.80
I1 to I2	475.00	12,210			3.50	2.30	0.50	0.20	0.10	6.60
I3 to I4	43.50	1,556			2.00	1.50	0.50	0.20	0.10	4.30
I5 to I6	12.50	412			2.00	1.60	0.50	0.20	0.10	4.40
I9 to I10	41.35	870			1.60	1.50	0.50	0.20	0.10	3.90
I11 to I12	36.20	279			1.40	1.30	0.50	0.20	0.10	3.50
TOTAL	651.30	17,934								AVERAGE
	STA./NO.	CU. YD.								HAUL
CUBIC YARD WEIGHTED HAUL					2.95	1.89	0.48	0.18	0.10	5.60

Average Round Trip Distance (miles)	11.20
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ROCK HAUL:

Truck type: D20 No. trucks: 8
Delay min.: 8 Efficiency: 85%

Ave haul:	\$3.99	/cy
Load:	\$0.30	/cy
Spread:	\$0.48	/cy

Truck type: D12 No. trucks:
 Delay min.: 6 Efficiency: 85%

Truck type: D10 No. trucks:
 Delay min.: 5 Efficiency: 85%

Production: cy/day = 1,605

CRUSHED ROCK HAUL COSTS 17,934 cy @ \$4.77 /cy

PIT RUN ROCK COST

SALE NAME:	Woody Woodpecker
PROJECT:	Nos. 1 and 2
QUARRY:	Rector Ridge Quarry

MATERIAL: Pit-Run & Riprap

DATE: 01/28/2019
BY: W. Lawrence

[illegible]

ROCK HAUL:

Truck type: D20 No. trucks:
 Delay min.: 8 Efficiency: 85%

Ave haul:	\$3.90	/cy
Load:	\$0.48	/cy
Spread:	\$0.78	/cy

Truck type:	<u>D12</u>	No. trucks:	<u>8</u>
Delay min.:	<u>6</u>	Efficiency:	<u>85%</u>

Truck type: D10 No. trucks:
 Delay min.: 5 Efficiency: 85%

Production: cy/day = 1,296

PIT RUN ROCK HAUL COSTS	1,722 cy @	\$5.16 /cy
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RIP RAP ROCK COST

SALE NAME: Woody Woodpecker
PROJECT: I9 to I10, 35+10
QUARRY: Sweethome Stockpile site

MATERIAL: Waste / Borrow

DATE: 02/12/2019
BY: W. Lawrence

[illegible]

ROCK HAUL:

Truck type:	D12	No. trucks:	2
Delay min.:	6	Efficiency:	85%

Truck type:	D10	No. trucks:	2
Delay min.:	5	Efficiency:	85%

Ave haul:	\$2.82	/cy
Load:	\$1.08	/cy
Compaction		/cy

Production: cy/day = 448

RIP RAP ROCK HAUL COSTS

867 cy @ \$3.90 /cy

Woody Woodpecker Timber Sale
FY 2019
TIMBER CRUISE REPORT

1. **Sale Area Location:** Areas 1, 2, 3, and 4 are located in portions of Sections 27, 28, 33, and 34, T4N, R8W, W.M., Clatsop County, Oregon

2. **Fund Distribution: Fund:** BOF 100% CSL 0%
Tax Code: 8-01 100%

3. **Sale Acreage by Area:**

Area	Harvest Type	Gross Acres	Green Tree Area	Non Thinnable Area	Stream Buffer Acres	New R/W Acres	Existing R/W Acres	Net Acreage
1	PCMP	236	13	3	26	6	8	180
2	PC	76	-	-	4	-	2	70
3	MC	48	-	-	6	-	1	41
4	MC	63	-	-	11	1	-	51
5	R/W	7	-	-	-	-	-	7
TOTALS		430	13	3	47	7	11	349

4. **Cruisers and Cruise Dates:** Area 1 was cruised on 1/15/19 and 1/16/19 by John Choate, Ella Salkeld, Justin Bush, and Kevin Berry. Area 2, 3, and 4 were cruised by John Choate, Kevin Berry, Cody Valencia, Justin Bush, Avery Petersen, and Matt Dimick on 1/9/19 and 1/10/19.

5. **Cruise Method and Computation:** Area 1 is a partial cut unit with three patch cuts. A variable plot cruise with a 33.61 BAF was used in this area. These plots were located on a 7 chain by 3 chain grid, with a count/cruise plot ratio of 1:1. A total of 79 plots were sampled with 41 measure plots and 38 count plots. One count plot had a minor species on it, resulting in an additional measure plot. Within Area 1 are three sub-units, Area 1A, 1B, and 1C. A variable plot cruise with a 40 BAF was used in these areas. These plots were located on a 2.5 chain by 2.5 chain grid, with a count/cruise ratio of 1:1. A total of 12 plots were sample with 8 measure plots and 4 count plots. One count plot had a minor species on it, resulting in an additional measure plot.

Area 2 is a partial cut unit. A variable plot cruise with a 33.61 BAF was used in this area. These plots were located on a 4 chain by 4 chain grid, with a count/cruise plot ratio of 1:1. A total of 47 plots were sampled with 26 measure plots and 21 count plots. Three count plots had minor species on them, resulting in additional measure plots.

Area 3 and 4 are modified clearcut units. A variable plot cruise with a 40 BAF was used in these areas. These plots were located on a 4 chain by 4 chain grid, with a count/cruise ratio of 2:1. A total of 59 plots were sampled with 23 measure plots and 36 count plots.

Area 5 (R/W): Right-of-way volume was calculated by multiplying the R/W acreage and the average volume per acre from the plots in Area 1, 3, and 4.

Cruisers used Allegro 2 data collectors, and were downloaded to the Atterbury Super A.C.E. program at the Astoria District for computing. See the attached Cruise Design for more details on the cruise method. The cruise calculations were processed in the Astoria District office.

<u>AREAS</u>	<u>PROJECT</u>	<u>TRACT</u>	<u>CRUISE TYPE</u>
1	WOODY	A1	OOPC, LV and TAKE
1ABC	WOODY	1ABC	OOMC and TAKE
2	WOODY	A2	OOPC, LV and TAKE
3 and 4	WOODY	A3	OOMC and TAKE
5(R/W)	WOODY	RW	TAKE

6. **Timber Description:** Area 1 is approximately 70 year old stands of western hemlock, Douglas-fir, Sitka spruce, and red alder. The average take hemlock tree size is approximately 15 inches DBH, with an average merchantable tree height of 50 feet. The average take Douglas-fir tree size for harvest is approximately 23 inches DBH, with an average merchantable tree height of 90 feet. The average take red alder tree size is approximately 17 inches DBH, with an average merchantable tree height of 52 feet. The average volume per acre to be harvested (net) is approximately 13 MBF. All trees were cruised to a merchantable top of 6 inch DIB or 40% fp. The target residual basal area is 130-150. The SDI is 30%. In addition, three patch cuts are posted for harvest totaling 9 acres, they have similar volumes to be harvested of (net) approximately 50 MBF per acre.

Area 2 is approximately 70 year old stands of western hemlock, Douglas-fir, Sitka spruce, and red alder. The average take hemlock tree size is approximately 14 inches DBH, with an average merchantable tree height of 32 feet. The average take Douglas-fir tree size for harvest is approximately 36 inches DBH, with an average merchantable tree height of 111 feet. The average take red alder tree size is approximately 18 inches DBH, with an average merchantable tree height of 54 feet. The average take Sitka Spruce tree size for harvest is approximately 34 inches DBH, with an average merchantable tree height of 78 feet. The average volume per acre to be harvested (net) is approximately 7 MBF. All trees were cruised to a merchantable top of 6 inch DIB or 40% fp. The target residual basal area is 130-150. The SDI is 30%.

Area 3 and 4 is an approximately 72 year old stand of western hemlock, Douglas-fir, red Alder and Sitka spruce. The average take hemlock tree size is approximately 23 inches DBH, with an average merchantable tree height of 66 feet. The average take Douglas-fir tree size for harvest is approximately 27 inches DBH, with an average merchantable tree height of 95 feet. The average take spruce tree size is approximately 33 inches DBH, with an average merchantable tree height of 76 feet. The average take red alder tree size is approximately 16 inches DBH, with an average merchantable tree height of 41 feet. The average volume per acre to be harvested (net) is approximately 32 MBF. All trees were cruised to a merchantable top of 6 inch DIB or 40% fp.

Area 5(R/W) is similar to the timber description mentioned in Areas 1 and 4. The average volume is 37 MBF/Acre (net).

Cedar is a reserved species.

7. **Statistical Analysis:** (See also "Statistics Reports," attached.)

Area	Target CV	Target SE%	Actual CV	Actual SE%
1	60	10	45.2	5.1
1ABC	40	10	32.3	9.7
2	60	12	45.8	6.7
3 and 4	50	8	59.7	7.8

The statistics are for all areas and Take and Leave trees combined based on Net BF/Acre.

8. **Take Volumes by Species and Log Grades for All Sale Areas by MBF:** (See "Species, Sort Grade-Board Feet Volumes (Project)", "Statistics (Project)", and the "Stand Table Summary" attached). Volumes do not include "in-growth." The majority of defect and breakage was taken out during the cruise.

Conifer

Species	DBH	Net Vol. MBF	2 Saw	3Saw	4 Saw	% D&B	% Sale
W. Hemlock	16	3,343	2,157	927	259	5.0	52%
Douglas-fir	25	1,198	956	207	35	2.2	19%
Spruce	33	380	268	93	19	7.3	6%
Western Red Cedar	36	3	0	2	1	10.3	<1%

*Western Red Cedar located within the R/W

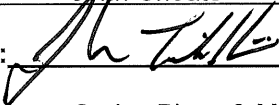
Hardwoods

Species	DBH	Net Vol. MBF	12"+	10-12"	8-10"	6-8"	% D&B	% Sale
Red Alder	16	1,435	254	507	425	249	3.9	23%
Bigleaf Maple	14	10	0	7	3	0	19.4	<1%

TOTAL NET VOLUME	6,369
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9. Prepared by: John Choate

Date: 2/14/19

10. Approved by: 

Date: 3/20/19

11. Attachments: Cruise Plans & Maps (8)
Species, Sort, Grade Report (6)
Statistics Reports (12)
Stand Table Summary Report (3)
Log Stock Table Report MBF (5)

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Woody Woodpecker

Area 1

Harvest Type: (PC) Partial Cut

Approx. Cruise Acres: 182 **Estimated CV%** 60 Net BF/Acre **SE% Objective** 10 Net BF/Acre

Planned Sale Volume : 7.3 MMBF **Estimated Sale Area Value/Acre:** \$4,015/Acre
(11 MBF/Ac. @ \$365/Acre)

A. Cruise Goals: (a) Grade minimum 100 conifer and 20 hardwood trees.
(b) Sample 79 cruise plots (40 grade/ 39 count); (c) Other goals (x Determine "automark" thinning standards; X Determine log grades for sale value; X Determine snag and leave tree species and sizes.

B. Cruise Design:

1. Plot Cruises: BAF 33.61 (Full point)
Cruise Line Directions: 148°/328°
Cruise Line Spacing 7 (chains) 462 (Feet)
Cruise Plot Spacing 3 (chains) 198 (Feet)
Grade/Count Ratio 1:1

LEAVE 5-6 Trees, leaving Conifer first, hardwoods second (Take all alder greater than 12")

Take plots as marked on cruise map. All cedar will be reserved. Record all snags as SN.

DO NOT RECORD 12', 22' and 32' (for Hardwoods).

DO NOT RECORD 22' LENGTHS.

All hardwood will be measured to a G, or as appropriate.

C. Tree Measurements:

- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 8" for hardwoods.
Record dbh to nearest 1/2" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.
- 2. Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.
- 3. Top Cruise Diameter (TCD):** Minimum top outside bark is 7" for conifers and 7" for hardwoods or 40 % of dob at 16' form point. Generally, use 7" outside bark for trees < 18" dbh and 40% of dob @ FP for conifer trees > 18" dbh.
- 4. Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer

species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 87.

5. **Tree Segments:** Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree. Hardwoods shall be recorded in 8' and 10' multiples.

6. **Species, Sort, and Grade Codes:**

- A. **Species:** Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)
- B. **Sort:** Use code "1" (Domestic).
- C. **Grade:** A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull
Hardwoods: Alder Grades: 12" + = 1 Sawmill; 10"-12" = 2 Sawmill; 10"-8" = 3 Sawmill; and 8"-6" 4 Sawmill, or R = Camp Run; 0 = Cull.
All Maple Camp Run = R

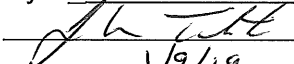
7. **Deductions:** Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.

8. **Standard Field Procedures:** Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at inter-visible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.

9. **Cruising Equipment:** Relaskop, Rangefinder, Logger's Tape (with dbh on back) Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.

10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Cruise Design by: John Choate

Approved by: 

Date: 1/9/19

Area 1 (PC)

Plots Total: 79

Grade Plots: 40

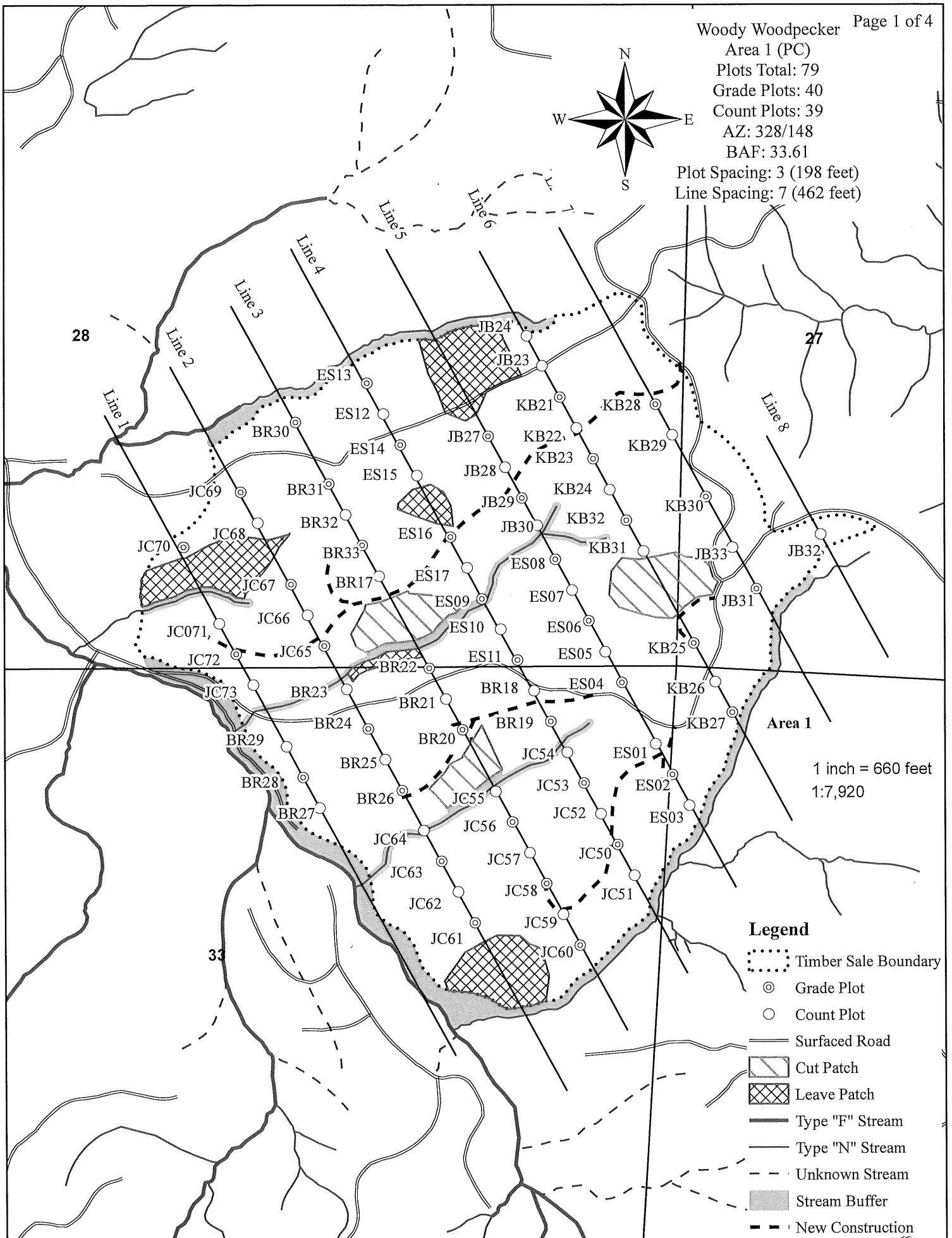
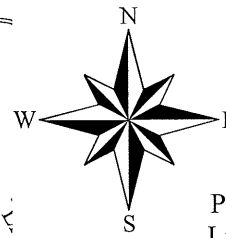
Count Plots: 39

AZ: 328/148

BAF: 33.61

Plot Spacing: 3 (198 feet)

Line Spacing: 7 (462 feet)



1 inch = 660 feet
1:7,920

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Woody Woodpecker

Area 1A,1B,1C

Harvest Type: (CC) Patch Cuts within Area 1 Partial Cut.

Approx. Cruise Acres: 8 **Estimated CV%** 40 Net BF/Acre **SE% Objective** 10 Net BF/Acre

Planned Sale Volume : 240 MBF **Estimated Sale Area Value/Acre:** \$8,250/Acre
(30 MBF/Ac. @ \$275/Acre)

A. Cruise Goals: (a) Grade minimum 50 conifer and 5 hardwood trees
(b) Sample 13 cruise plots (7 grade/ 6 count); (c) Other goals Determine "automark"
thinning standards; X Determine log grades for sale value; X Determine snag and leave
tree species and sizes.

B. Cruise Design:

- 1. Plot Cruises:** BAF 40 (Full point)
Cruise Line Directions: See Map
Cruise Line Spacing 2.5 (chains) 165 (Feet)
Cruise Plot Spacing 2.5 (chains) 165 (Feet)
Grade/Count Ratio 1:1

Take plots as marked on cruise map. All cedar will be reserved. Record all snags as SN.

DO NOT RECORD 12', 22' and 32' (for Hardwoods).

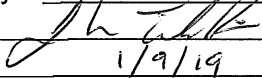
DO NOT RECORD 22' LENGTHS.

All hardwood will be measured to a G, or as appropriate.

C. Tree Measurements:

- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 8" for hardwoods.
Record dbh to nearest 1/2" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for
trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then
record to closest estimate.
- 2. Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in
merchantable height, estimating to the nearest 5 feet is acceptable.
- 3. Top Cruise Diameter (TCD):** Minimum top outside bark is 7" for conifers and 7" for
hardwoods or 40 % of DOB at 16' form point. Generally, use 7" outside bark for trees < 18"
dbh and 40% of DOB @ FP for conifer trees > 18" DBH.
- 4. Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree
measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer
species on the cruise area, and use these to calculate average FF for the species on the
cruise. Hardwood form factors are a Standard 87.

- 5. Tree Segments:** Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree. Hardwoods shall be recorded in 8' and 10' multiples.
- 6. Species, Sort, and Grade Codes:**
- A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)
- B. Sort: Use code "1" (Domestic).
- C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull
Hardwoods: Alder Grades: 12" + = 1 Sawmill; 10"-12" = 2 Sawmill; 10"-8" = 3 Sawmill; and 8"-6" 4 Sawmill, or R = Camp Run; 0 = Cull.
All Maple Camp Run = R
- 7. Deductions:** Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.
- 8. Standard Field Procedures:** Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at inter-visible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.
- 9. Cruising Equipment:** Relaskop, Rangefinder, Logger's Tape (with dbh on back) Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.
- 10. Attachments:** A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Cruise Design by: John Tillotson
Approved by: 
Date: 1/9/19

Plots Total: 12

Grade Plots: 7

Count Plots: 5

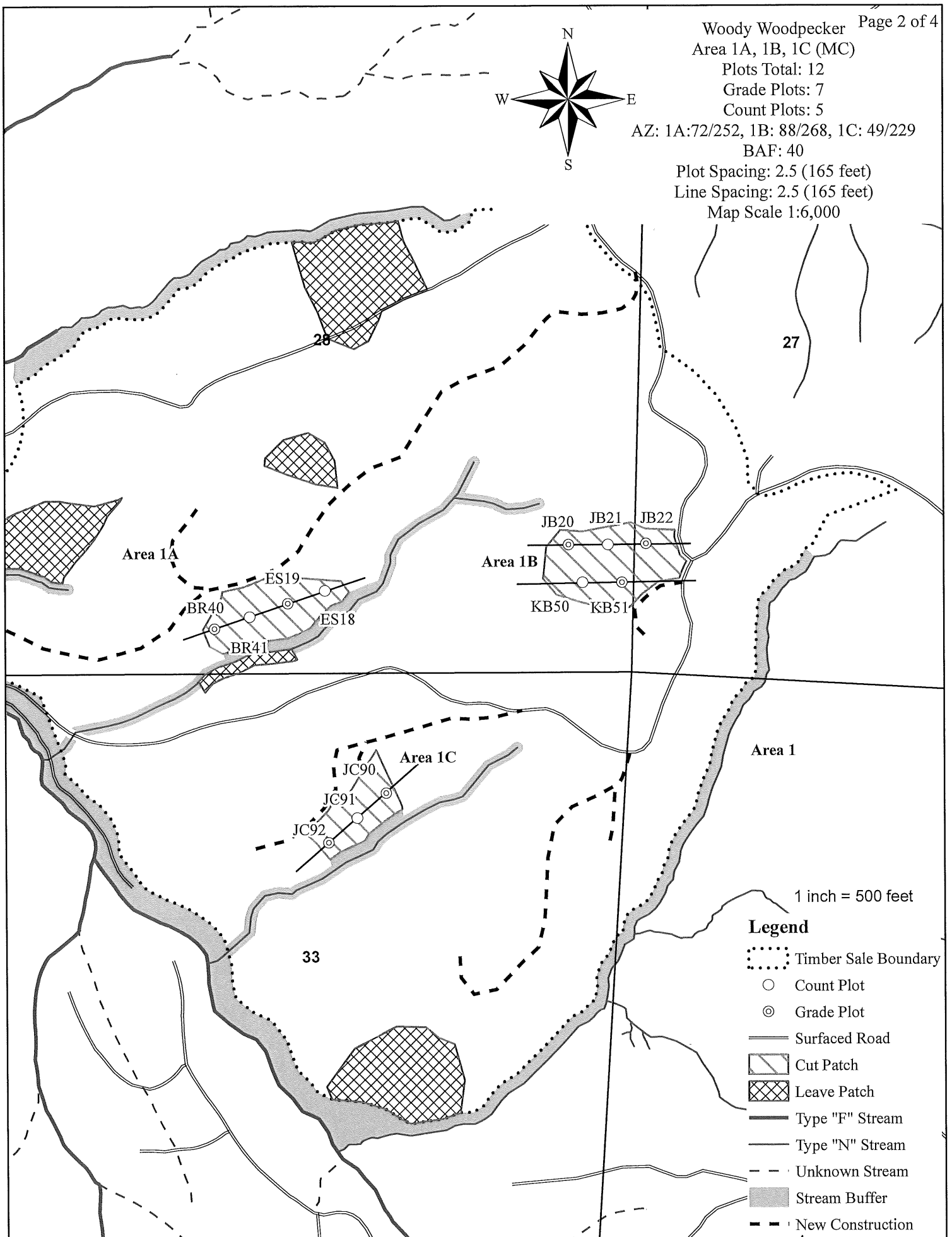
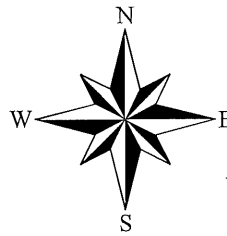
AZ: 1A:72/252, 1B: 88/268, 1C: 49/229

BAF: 40

Plot Spacing: 2.5 (165 feet)

Line Spacing: 2.5 (165 feet)

Map Scale 1:6,000



**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Woody Woodpecker

Area 2

Harvest Type: (PC) Partial cut

Approx. Cruise Acres: 102 **Estimated CV%** 60 Net BF/Acre **SE% Objective** 12 Net BF/Acre

Planned Sale Volume : 7.3 MMBF **Estimated Sale Area Value/Acre:** \$5,320/Acre
(14 MBF/Ac. @ \$380/Acre)

A. Cruise Goals: (a) Grade minimum 100 conifer and 20 hardwood trees
(b) Sample 47 cruise plots (23 grade/ 24 count); (c) Other goals (x Determine "automark"
thinning standards; X Determine log grades for sale value; X Determine snag and leave
tree species and sizes.

B. Cruise Design:

1. Plot Cruises: BAF 33.31 (Full point)
Cruise Line Directions: 153°/333°
Cruise Line Spacing 4 (chains) 264 (Feet)
Cruise Plot Spacing 4 (chains) 264 (Feet)
Grade/Count Ratio 1:1

LEAVE 5-6 Trees, Leaving Conifer first, hardwoods Second (Target BA = 165)

Leave All Red Alder >12"

Take plots as marked on cruise map. All cedar will be reserved. Record all snags as SN.

DO NOT RECORD 12', 22' and 32' (for Hardwoods).

DO NOT RECORD 22' LENGTHS.

All hardwood will be measured to a G, or as appropriate.

C. Tree Measurements:

- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 8" for hardwoods.
Record dbh to nearest ½" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for
trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then
record to closest estimate.
- 2. Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in
merchantable height, estimating to the nearest 5 feet is acceptable.
- 3. Top Cruise Diameter (TCD):** Minimum top outside bark is 7" for conifers and 7" for
hardwoods or 40 % of dob at 16' form point. Generally, use 7" outside bark for trees < 18"
dbh and 40% of dob @ FP for conifer trees > 18" dbh.

4. **Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 87.
5. **Tree Segments:** Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree. Hardwoods shall be recorded in 8' and 10' multiples.
6. **Species, Sort, and Grade Codes:**
- A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)
- B. Sort: Use code "1" (Domestic).
- C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull
Hardwoods: Alder Grades: 12" + = 1 Sawmill; 10"-12" = 2 Sawmill; 10"-8" = 3 Sawmill; and 8"-6" 4 Sawmill, or R = Camp Run; 0 = Cull.
All Maple Camp Run = R
7. **Deductions:** Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.
8. **Standard Field Procedures:** Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at inter-visible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.
9. **Cruising Equipment:** Relaskop, Rangefinder, Logger's Tape (with dbh on back) Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.
10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Cruise Design by: J. CHATE
Approved by: [Signature]
Date: 1/9/19

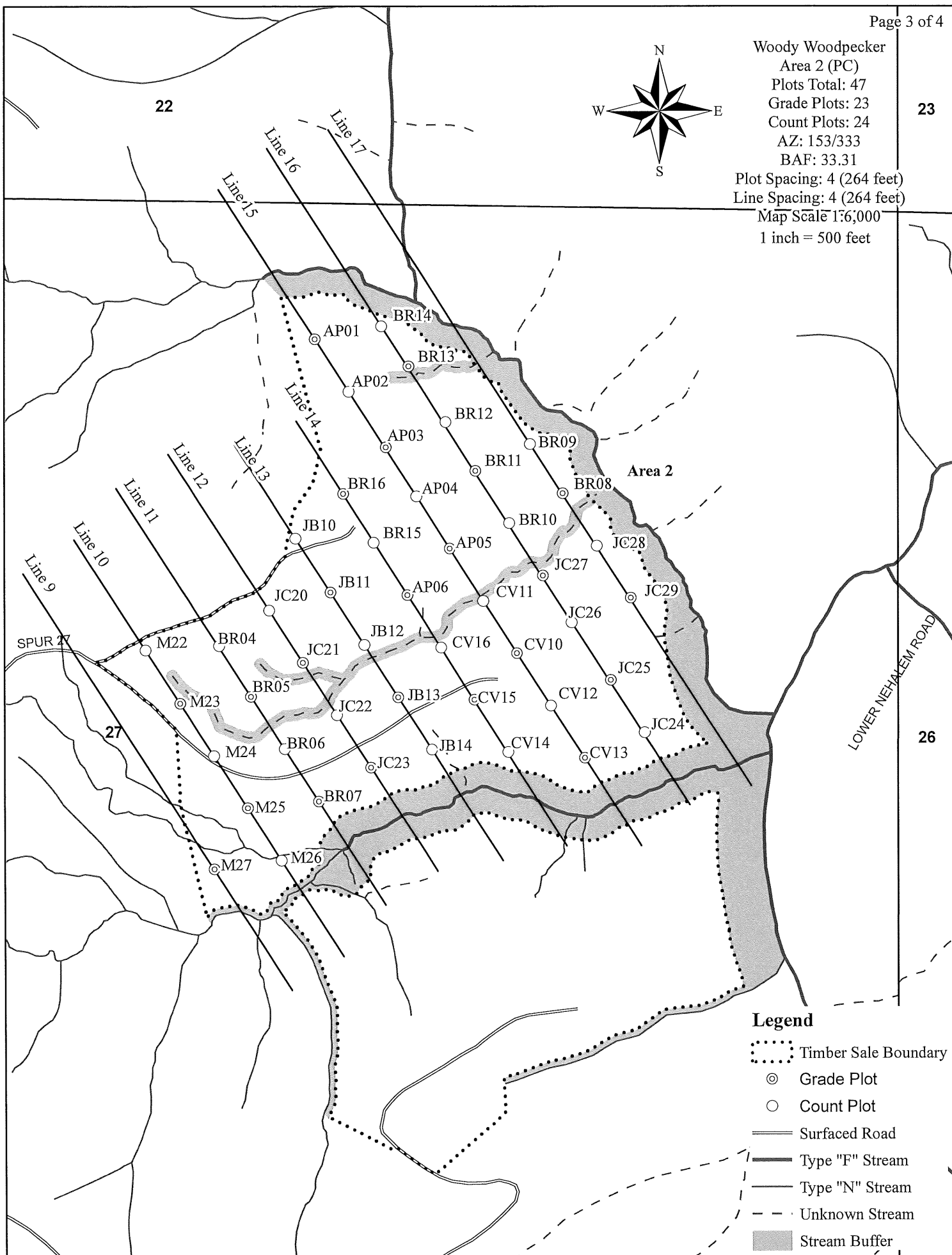
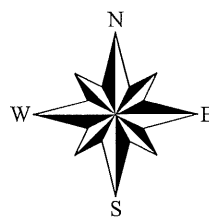
Woody Woodpecker
Area 2 (PC)
Plots Total: 47
Grade Plots: 23
Count Plots: 24
AZ: 153/333
BAF: 33.31

Plot Spacing: 4 (264 feet)

Line Spacing: 4 (264 feet)

Map Scale 1:6,000

1 inch = 500 feet



Legend

- Timber Sale Boundary
- Grade Plot
- Count Plot
- Surfaced Road
- Type "F" Stream
- Type "N" Stream
- Unknown Stream
- Stream Buffer

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Woody Woodpecker

Area 3 and 4

Harvest Type: (MC) Modified Clearcut

Approx. Cruise Acres: 92 **Estimated CV%** 50 Net BF/Acre **SE% Objective** 8 Net BF/Acre

Planned Sale Volume : 7.3 MMBF **Estimated Sale Area Value/Acre:** \$13,300/Acre
(35 MBF/Ac. @ \$380/Acre)

A. Cruise Goals: (a) Grade minimum 110 conifer and 20 hardwood trees
(b) Sample 59 cruise plots (24 grade/ 35 count); (c) Other goals (Determine "automark"
thinning standards; X Determine log grades for sale value; X Determine snag and leave
tree species and sizes.

B. Cruise Design:

1. Plot Cruises: BAF 40 (Full point)
Cruise Line Directions: Area 3: 173/353°
Area 4: 102°/282°
Cruise Line Spacing 4 (chains) 264 (Feet)
Cruise Plot Spacing 4 (chains) 264 (Feet)
Grade/Count Ratio 1:2

Take plots as marked on cruise map. All cedar will be reserved. Record all snags as SN.

DO NOT RECORD 12', 22' and 32' (for Hardwoods).

DO NOT RECORD 22' LENGTHS.

All hardwood will be measured to a G, or as appropriate.

C. Tree Measurements:

- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 8" for hardwoods.
Record dbh to nearest 1/2" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.
- 2. Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.
- 3. Top Cruise Diameter (TCD):** Minimum top outside bark is 7" for conifers and 7" for hardwoods or 40 % of dob at 16' form point. Generally, use 7" outside bark for trees < 18" dbh and 40% of dob @ FP for conifer trees > 18" dbh.
- 4. Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 87.

5. Tree Segments: Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree. Hardwoods shall be recorded in 8' and 10' multiples.

6. Species, Sort, and Grade Codes:

- A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)
- B. Sort: Use code "1" (Domestic).
- C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull
Hardwoods: Alder Grades: 12" + = 1 Sawmill; 10"-12" = 2 Sawmill; 10"-8" = 3 Sawmill; and 8"-6" 4 Sawmill, or R = Camp Run; 0 = Cull.
All Maple Camp Run = R

7. Deductions: Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.

8. Standard Field Procedures: Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at inter-visible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.

9. Cruising Equipment: Relaskop, Rangefinder, Logger's Tape (with dbh on back) Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.

10. Attachments: A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Cruise Design by: J. CHOATE

Approved by: [Signature]

Date: 1/9/19

Plots Total: 59

Grade Plots: 23

Count Plots: 36

AZ: Area 3: 173/353

Area 4: 102/282

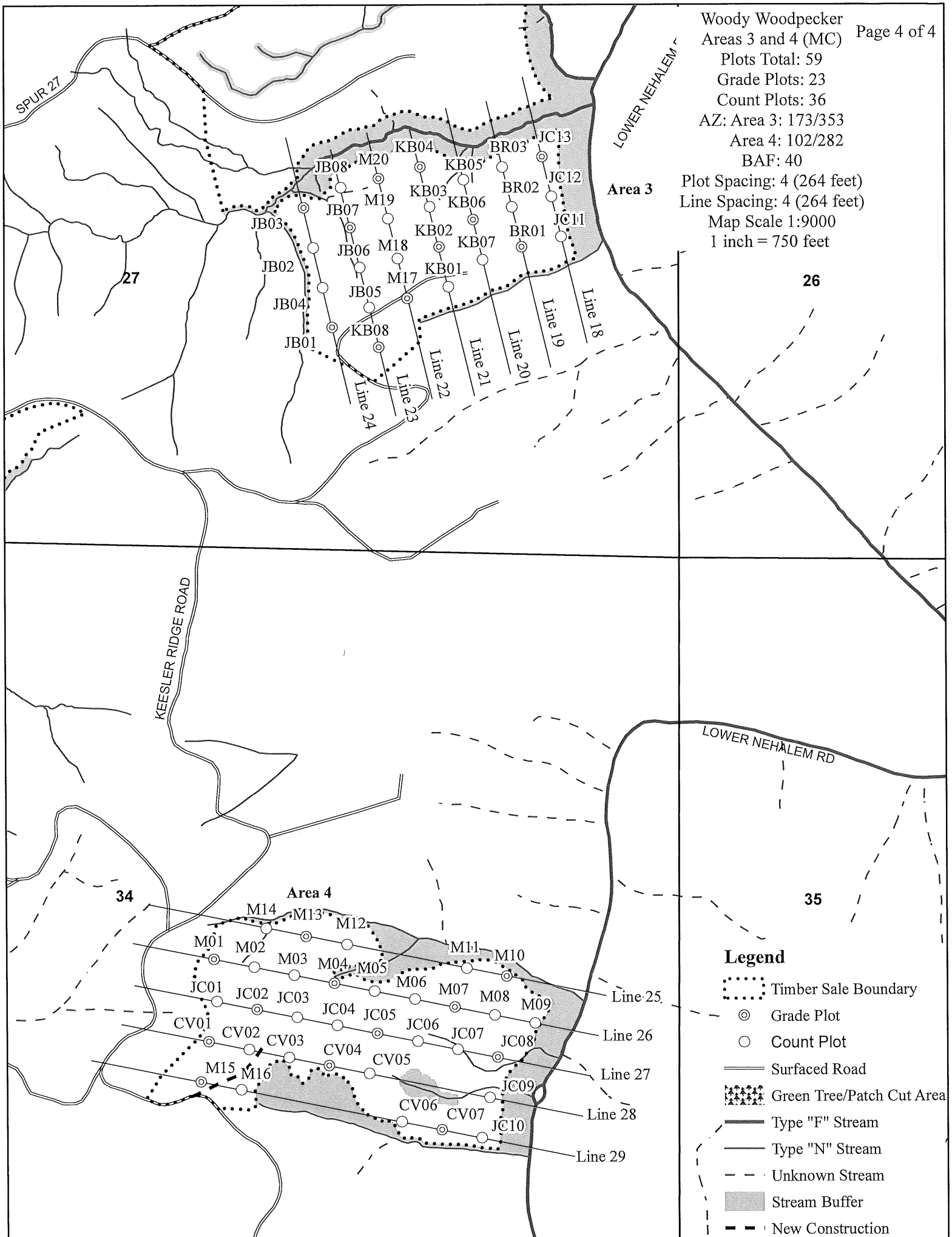
BAF: 40

Plot Spacing: 4 (264 feet)

Line Spacing: 4 (264 feet)

Map Scale 1:9000

1 inch = 750 feet



TC PSCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																				
T04N R08W S27 TyTAKE THRU T04N R08W S27 TyRW					Project: WOODY										Page 1							
					Acres 349.00										Date 3/14/2019							
															Time 10:52:27AM							
S Spp	So T	Gr rt	ad	% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent of Net Board Foot Volume								Average Log				Logs Per /Acre	
									Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf		
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99						
D		DOCU			100.0	3											15	12		0.00	.0	
D		DO2S		79	1.9	2,793	2,739	956		0	34	66	0	0	0	100	40	16	440	2.46	6.2	
D		DO3S		18	3.4	614	594	207		76	24	0	4	7	43	46	33	10	119	1.06	5.0	
D		DO4S		3		102	102	35		20	80		84	6	10	0	19	7	30	0.56	3.4	
D Totals				19	2.2	3,512	3,434	1,198 1,199		1	16	31	52	3	2	8	87	33	12	235	1.72	14.6
H		DOCU			100.0	311											11	17		0.00	1.7	
H		DO2S		64	2.2	6,323	6,182	2,157		8	44	48	1	1	7	91	39	14	326	1.99	19.0	
H		DO3S		28	1.5	2,695	2,655	927		4	88	3	4	1	8	20	37	8	86	0.73	31.0	
H		DO4S		8	1.5	754	742	259		5	94	1	0	49	39	6	22	6	29	0.46	25.9	
H Totals				52	5.0	10,083	9,579	3,343		2	37	29	32	5	6	11	79	32	9	124	1.04	77.5
A		DOCU			100.0	120											9	12		0.00	2.5	
A		DO1S		17	1.6	741	729	254		8	57	35		10		90	38	14	280	1.88	2.6	
A		DO2S		36	.9	1,465	1,452	507		56	42	2	6	28	15	51	33	11	151	1.28	9.6	
A		DO3S		29	1.4	1,235	1,217	425		0	83	17	3	34	21	42	33	9	90	0.96	13.5	
A		DO4S		18	.7	717	712	249		3	97		45	17	3	36	24	6	33	0.56	21.9	
A Totals				23	3.9	4,279	4,110	1,435 1,434		0	63	30	7	11	25	12	53	28	8	82	0.93	50.2
S		DOCU			100.0	48											6	45		0.00	.1	
S		DO2S		70	4.7	807	769	268		1	5	93			5	95	39	25	1170	5.97	.7	
S		DO3S		25	.3	268	267	93		6	20	74	4	16	4	76	32	13	314	2.56	.8	
S		DO4S		5		54	54	19		23	71	6	32	62	0	6	23	10	107	1.40	.5	
S Totals				6	7.3	1,177	1,090	380		4	12	84	3	7	4	86	31	17	522	3.69	2.1	
M		DOCU			100.0	25											45	6		0.00	.4	
M		DO2S		1	11.1	0	0	0				100		100			30	19	400	3.93	.0	
M		DO3S		67		21	21	7		100					100		32	11	140	1.22	.2	
M		DO4S		32	14.9	12	10	3		100			30	69		1	24	7	31	0.68	.3	
M Totals				0	46.2	59	31	10 11		99		1	10	23	67	0	35	7	38	0.39	.8	
C		DOCU			100.0	1											6	29		0.00	.0	
C		DO2S		61		7	7	2				100			26	74	36	23	925	5.56	.0	
C		DO3S		39	1.2	4	4	1		32	68		11		34	55	30	11	152	2.80	.0	
C Totals				0	10.3	12	11	3 4		12	26	61	4		29	67	28	15	271	3.36	.0	
Totals					4.5	19,121	18,257	6,369 6,372		1	37	29	33	6	9	10	75	31	9	126	1.11	145.3

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)												Page		1					
				Project: WOODY												Date		3/14/2019					
																Time		10:53:16AM					
T04N R08W S27 TTAKE														T04N R08W S27 TTAKE									
Twp		Rge		Sec		Tract		Type		Acres		Plots		Sample Trees		CuFt		BdFt					
04N		08W		27		1ABCT		TAKE		9.00		12		44		1		W					
S So Gr T rt ad Spp				% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre		
									Log Scale Dia.				Log Length				Ln	Dia	Bd	CF/ Lf			
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft				
H				DO	CU		00.0	311									8	21		0.00	2.1		
H				DO	2S	74	1.4	20,300	20,008	180		7	38	55	4		96	39	14	334	1.96	60.0	
H				DO	3S	21	.9	5,621	5,569	50	3	87	10		8	14	20	58	34	8	82	0.72	68.3
H				DO	4S	5		1,120	1,120	10	54	46			76		24	22	6	24	0.34	46.8	
H Totals						53	2.4	27,351	26,697	240	3	26	31	41	8	3	4	85	32	9	151	1.16	177.2
D				DO	2S	79	1.3	17,866	17,641	159		45	55			100	40	16	424	2.33	41.6		
D				DO	3S	17	1.9	3,678	3,608	32		100			8	29	14	49	31	10	120	1.07	29.9
D				DO	4S	4		850	850	8	34	66			75	25		20	7	30	0.53	27.9	
D Totals						44	1.3	22,394	22,100	199	1	19	36	44	4	6	2	88	32	12	222	1.64	99.5
A				DO	2S	49		566	566	5		100				100	30	12	150	1.40	3.8		
A				DO	4S	51		585	585	5		100			13		87	34	6	48	0.55	12.3	
A Totals						2		1,151	1,151	10	51	49			7	49	44	33	7	72	0.73	16.0	
S				DO	2S	83		358	358	3	100					100	40	10	150	1.15	2.4		
S				DO	3S	17		72	72	1	100				100			24	6	30	0.46	2.4	
S Totals						1		430	430	4	100				17	83		32	8	90	0.89	4.8	
Type Totals							1.8	51,326	50,377	453	2	24	33	41	6	5	3	85	32	10	169	1.29	297.5

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)												Page 1								
Project: WOODY												Date 3/14/2019										
												Time 10:53:16AM										
T04N R08W S27 TTAKE										T04N R08W S27 TTAKE												
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt													
04N	08W	27	A1T	TAKE	171.00	79	98	1	W													
S So Gr Spp T rt ad			% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent Net Board Foot Volume								Average Log		Logs Per /Acre				
								Log Scale Dia.				Log Length				Ln	Dia		Bd	CF/ Lf		
										4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft		
H	DO	CU		00.0	284													10	15		0.00	2.5
H	DO	2S	52	1.1	4,203	4,155	711				10	57	33	2	2	3	94	39	14	276	1.72	15.1
H	DO	3S	36	1.5	2,901	2,858	489			8	88		4	0	7	20	73	37	8	85	0.69	33.7
H	DO	4S	12	1.5	951	937	160			4	96			44	42	5	9	23	6	29	0.46	32.5
H	Totals		61	4.7	8,339	7,949	1,359			3	48	30	19	6	8	9	76	31	8	95	0.85	83.8
A	DO	CU		00.0	51													5	13		0.00	1.4
A	DO	1S	25	2.5	717	698	119					47	53		13		87	37	15	332	2.21	2.1
A	DO	2S	49	1.3	1,352	1,334	228				75	25			48	11	41	33	11	138	1.14	9.7
A	DO	3S	6		154	154	26				100			8	16	53	24	30	7	56	0.76	2.8
A	DO	4S	20	1.9	543	532	91			7	93			33	8	4	56	25	6	34	0.57	15.7
A	Totals		21	3.5	2,815	2,718	465			1	61	24	14	7	30	9	55	28	8	86	0.93	31.7
D	DO	2S	72	3.3	1,808	1,749	299					35	65				100	40	16	407	2.33	4.3
D	DO	3S	25	4.1	627	602	103				76	24		5	6	29	60	33	9	107	0.97	5.6
D	DO	4S	3		62	62	11			40	60			69		31		20	6	25	0.46	2.5
D	Totals		18	3.4	2,497	2,413	413			1	21	32	47	3	1	8	87	33	11	195	1.48	12.4
Type Totals				4.2	13,651	13,080	2,237			2	46	29	23	6	12	9	74	30	9	102	0.94	127.8

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)										Page		1					
				Project: WOODY										Date		3/14/2019					
														Time		10:53:16AM					
T04N R08W S27 TTAKE										T04N R08W S27 TTAKE											
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt												
04N	08W	27	A2T	TAKE	70.00	47	55	1	W												
S Spp	So T	Gr rt	ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
									Log Scale Dia.				Log Length				Ln Dia Bd CF/				
					Def%	Gross	Net		4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft In	Ft	Lf		
A	DO	CU			00.0	132									11	11		0.00	2.8		
A	DO	1S	23		.6	1,211	1,204	84		100			9		91	39	13	235	1.65	5.1	
A	DO	2S	36		.3	1,910	1,905	133		52	40	8	7	17	12	64	33	11	148	1.36	12.8
A	DO	3S	25		.7	1,298	1,289	90		92	8		2	31	10	57	34	9	105	0.98	12.3
A	DO	4S	16			804	804	56		100			46	21	5	28	25	6	34	0.58	23.5
A	Totals			76	2.9	5,356	5,203	364		57	40	3	10	19	8	63	29	9	92	1.00	56.5
H	DO	CU			00.0	147											10	25		0.00	.5
H	DO	2S	37			227	227	16		100					100		32	10	120	1.00	1.9
H	DO	3S	35			209	209	15		100					100		32	7	60	0.71	3.5
H	DO	4S	28			162	162	11		100			65	35			19	7	30	0.48	5.4
H	Totals			9	19.7	745	598	42		100			18	9	73		25	8	53	0.68	11.3
S	DO	3S	100			715	715	50		7		93			100		38	15	450	3.30	1.6
S	Totals			10		715	715	50		7		93			100		38	15	450	3.30	1.6
D	DO	2S	100			364	364	25			7	93		7		93	35	18	600	3.51	.6
D	Totals			5		364	364	25			7	93		7		93	35	18	600	3.51	.6
Type Totals					4.2	7,180	6,880	482		53	30	17	9	16	12	63	29	9	98	1.05	70.0

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)														Page 1						
		Project: WOODY														Date 3/14/2019						
																Time 10:53:16AM						
T04N R08W S27 TTAKE										T04N R08W S27 TTAKE												
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt													
04N	08W	27	A34T	TAKE	92.00	59	122	1	W													
S So Gr T rt ad Spp			% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre			
								Log Scale Dia.				Log Length				Ln	Dia	Bd		CF/ Lf		
										4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft	Lf	
H	DO	CU		00.0	429													16	27		0.00	.9
H	DO	2S	73	3.1	12,586	12,199	1,122				6	39	55			9	91	39	15	368	2.20	33.2
H	DO	3S	22	1.6	3,790	3,729	343	0	90	6	4			1	8	18	74	37	8	88	0.80	42.3
H	DO	4S	5	2.1	774	758	70		97	3				54	38	9		22	6	29	0.46	26.5
H	Totals		52	5.1	17,579	16,685	1,535	0	29	30	41			3	3	11	83	33	10	162	1.26	102.8
A	DO	CU		00.0	253													10	13		0.00	4.7
A	DO	1S	7	1.2	486	480	44		46		54					100		40	13	265	1.68	1.8
A	DO	2S	23	1.0	1,408	1,394	128		27	73				16		26	58	33	13	188	1.50	7.4
A	DO	3S	54	1.8	3,360	3,299	304		78	22				3	36	22	39	33	9	91	0.98	36.2
A	DO	4S	16		984	984	91		100					58	25		17	22	6	30	0.54	33.1
A	Totals		19	5.1	6,491	6,158	566		68	28	4			14	23	18	44	28	8	74	0.90	83.3
D	DO	2S	84	1.4	4,723	4,657	428			32	68					100		40	16	461	2.55	10.1
D	DO	3S	12	3.2	729	705	65		65	35						77	23	33	11	143	1.24	4.9
D	DO	4S	4		175	175	16		100					100				17	8	34	0.68	5.1
D	Totals		17	1.6	5,626	5,537	509		11	32	57			3		10	87	32	13	275	1.97	20.1
S	DO	CU		00.0	181													6	45		0.00	.3
S	DO	2S	82	4.7	2,998	2,856	263			5	95					5	95	39	26	1279	6.49	2.2
S	DO	3S	12	.7	423	420	39		4	47	49			9	37	9	45	29	14	249	2.05	1.7
S	DO	4S	6		192	192	18		24	76				34	66			22	10	101	1.35	1.9
S	Totals		11	8.6	3,794	3,467	319		2	14	84			3	8	5	84	30	19	568	4.01	6.1
M	DO	CU		00.0	96													45	6		0.00	1.4
M	DO	3S	68		80	80	7		100							100		32	11	140	1.22	.6
M	DO	4S	32	14.8	44	37	3		100					31	69			24	7	31	0.67	1.2
M	Totals		0	46.5	220	118	11		100					10	22	68		35	7	37	0.39	3.2
Type Totals				5.2	33,710	31,965	2,941	0	31	28	41			5	7	12	76	31	10	148	1.27	215.5

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)												Page		1			
				Project: WOODY												Date		3/14/2019			
																Time		10:53:16AM			
T04N R08W S27 TRW																T04N R08W S27 TRW					
Twp		Rge		Sec		Tract		Type		Acres		Plots		Sample Trees		CuFt		BdFt			
04N		08W		27		A5RW		RW		7.00		126		416		1		W			
S So Gr Spp T rt ad				% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
									Log Scale Dia.				Log Length				Ln	Dia	Bd		CF/ Lf
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft		
H DO CU					00.0 1,069												10	22		0.00	4.2
H DO 2S				77	2.1 18,765 18,373			129		6	30	63	1	3	4	91	38	15	407	2.41	45.2
H DO 3S				18	1.4 4,391 4,328			30	3	67	14	17	4	9	21	66	35	8	102	0.89	42.2
H DO 4S				5	.7 1,107 1,100			8	2	94	4	1	56	31	9	4	21	7	31	0.53	35.3
H Totals				64	6.0 25,332 23,801			167	1	21	26	52	4	5	8	83	31	11	188	1.47	126.9
A DO CU					00.0 88												9	12		0.00	2.0
A DO 1S				22	1.4 949 936			7			78	22		11		89	38	14	268	1.84	3.5
A DO 2S				42	.7 1,714 1,702			12		65	31	4	3	32	11	53	33	11	139	1.22	12.3
A DO 3S				16	.6 682 678			5	1	92	7		3	28	16	53	34	8	84	0.85	8.1
A DO 4S				20	.7 787 781			5	3	97			40	16	4	40	25	6	34	0.56	22.8
A Totals				11	2.9 4,221 4,097			29	1	61	32	7	10	24	8	59	29	8	84	0.92	48.7
D DO CU					00.0 143												15	12		0.00	1.6
D DO 2S				84	1.2 6,406 6,327			44		2	23	75	1	2	1	96	39	17	488	2.66	13.0
D DO 3S				13	1.5 1,001 986			7		70	26	4	3	4	52	41	34	10	123	1.04	8.0
D DO 4S				3	156 156			1	9	91			53	19	15	13	21	7	35	0.66	4.4
D Totals				20	3.1 7,706 7,468			52	0	13	23	64	2	2	8	87	33	13	276	1.89	27.0
C DO CU					00.0 60												6	29		0.00	.3
C DO 2S				61	333 333			2			100			26	74		36	23	925	5.56	.4
C DO 3S				39	1.2 213 211			1		32	68		11		34	55	30	11	152	2.80	1.4
C Totals				1	10.3 606 544			4	12	26	61	4		29	67		28	15	271	3.36	2.0
S DO 2S				33	2.6 369 359			3			100			19	81		39	24	1004	5.45	.4
S DO 3S				50	1.7 556 546			4	4	20	76	1		4	94		36	15	434	3.37	1.3
S DO 4S				17	179 179			1	7	7	86	7		7	86		27	14	484	4.08	.4
S Totals				3	1.7 1,103 1,084			8	3	11	86	2		10	88		35	17	546	3.89	2.0
M DO 2S				79	11.1 20 18			0			100			100			30	19	400	3.93	.0
M DO 4S				21	28.6 6 5			0	100					100			38	7	50	1.39	.1
M Totals				0	15.3 27 23			0	20		80		80		20		35	11	164	2.10	.1
Type Totals					5.1 38,995 37,017			259	0	23	26	51	4	6	8	81	31	11	179	1.45	206.7

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT WOODY				DATE	3/14/2019		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
04N	08W	27	A1	00PC	171.00	79	642	1	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
					TREES	TREES					
TOTAL		79	642	8.1							
CRUISE		41	298	7.3	23,252	1.3					
DBH COUNT											
REFOREST											
COUNT		38	330	8.7							
BLANKS											
100 %											
STAND SUMMARY											
SAMPLE		TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
TREES		/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
HEMLEAV		142	38.0	23.6	72	23.7	114.9	21,364	20,011	4,982	
WHEMLOCK		57	54.0	14.6	50	16.5	63.0	8,339	7,949	2,255	
DOUGLEAV		42	11.9	24.8	85	8.0	40.0	8,690	8,457	1,912	
R ALDER		27	17.6	16.5	52	6.4	26.0	2,815	2,718	838	
DOUG FIR		13	4.6	22.8	90	2.8	13.2	2,497	2,413	602	
SNAG		10	5.7	17.8	43	2.3	9.8	234		64	
ALDRLEAV		3	3.7	11.2	37	0.8	2.6	124	124	56	
SPRUCELV		2	.2	40.3	77	0.3	2.1	373	354	87	
CEDLEAV		2	.3	33.4	62	0.3	1.7	112	82	46	
TOTAL		298	136.0	19.2	60	62.3	273.1	44,548	42,107	10,842	
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL: 68.1 %		COEFF		SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
HEMLEAV		95.2	8.0	955	1,037	1,120					
WHEMLOCK		95.8	12.7	230	264	297					
DOUGLEAV		54.4	8.4	917	1,001	1,085					
R ALDER		100.8	19.8	174	217	260					
DOUG FIR		50.5	14.6	540	632	724					
SNAG											
ALDRLEAV		68.6	47.5	19	37	54					
SPRUCELV		51.7	48.4	862	1,670	2,478					
CEDLEAV		16.8	15.7	249	295	341					
TOTAL		110.3	6.4	699	747	794		486	121	54	
CL: 68.1 %		COEFF		TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
HEMLEAV		73.3	8.2	35	38	41					
WHEMLOCK		116.1	13.0	47	54	61					
DOUGLEAV		136.6	15.4	10	12	14					
R ALDER		183.4	20.6	14	18	21					
DOUG FIR		247.4	27.8	3	5	6					
SNAG		232.8	26.2	4	6	7					
ALDRLEAV		354.1	39.8	2	4	5					
SPRUCELV		395.8	44.5	0	0	0					
CEDLEAV		538.4	60.5	0	0	0					
TOTAL		57.3	6.4	127	136	145		131	33	15	
CL: 68.1 %		COEFF		BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
HEMLEAV		55.2	6.2	108	115	122					
WHEMLOCK		109.6	12.3	55	63	71					
DOUGLEAV		126.3	14.2	34	40	46					
R ALDER		175.9	19.8	21	26	31					

TC TSTATS				STATISTICS				PAGE	2
				PROJECT WOODY				DATE	3/14/2019
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
04N	08W	27	A1	00PC	171.00	79	642	1	W
CL: 68.1 %	COEFF		BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.	S.E. %	LOW	AVG	HIGH		5	10	15
DOUG FIR	246.3	27.7	10	13	17				
SNAG	199.5	22.4	8	10	12				
ALDRLEAV	351.0	39.5	2	3	4				
SPRUCELV	387.2	43.5	1	2	3				
CEDLEAV	538.4	60.5	1	2	3				
TOTAL	36.9	4.1	262	273	284		54	14	6
CL: 68.1 %	COEFF		NET BF/ACRE				# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR. %	S.E. %	LOW	AVG	HIGH		5	10	15
HEMLEAV	60.8	6.8	18,644	20,011	21,378				
WHEMLOCK	118.8	13.4	6,888	7,949	9,011				
DOUGLEAV	128.0	14.4	7,240	8,457	9,674				
R ALDER	183.6	20.6	2,157	2,718	3,279				
DOUG FIR	249.8	28.1	1,735	2,413	3,090				
SNAG									
ALDRLEAV	373.1	41.9	72	124	176				
SPRUCELV	387.3	43.5	200	354	508				
CEDLEAV	538.4	60.5	32	82	131				
TOTAL	45.2	5.1	39,967	42,107	44,248		82	20	9

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT WOODY				DATE	3/14/2019		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
04N	08W	27	A1T	TAKE	171.00	79	242	1	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
					TREES	TREES					
PLOTS		TREES									
TOTAL		79		3.1							
CRUISE		34		2.9		13,026		.7			
DBH COUNT											
REFOREST											
COUNT		35		4.1							
BLANKS		10									
100 %											
STAND SUMMARY											
SAMPLE		TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
TREES		/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
WHEMLOCK		57	54.0	14.6	50	16.5	63.0	8,339	7,949	2,255	
R ALDER		27	17.6	16.5	52	6.4	26.0	2,815	2,718	838	
DOUG FIR		13	4.6	22.8	90	2.8	13.2	2,497	2,413	602	
TOTAL		97	76.2	15.7	53	25.8	102.1	13,651	13,080	3,696	
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK		95.8	12.7	230	264	297					
R ALDER		100.8	19.8	174	217	260					
DOUG FIR		50.5	14.6	540	632	724					
TOTAL		94.6	9.6	271	300	329	357	89	40		
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK		116.1	13.0	47	54	61					
R ALDER		183.4	20.6	14	18	21					
DOUG FIR		247.4	27.8	3	5	6					
TOTAL		84.2	9.5	69	76	83	283	71	31		
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK		109.6	12.3	55	63	71					
R ALDER		175.9	19.8	21	26	31					
DOUG FIR		246.3	27.7	10	13	17					
TOTAL		72.5	8.2	94	102	110	210	53	23		
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK		118.8	13.4	6,888	7,949	9,011					
R ALDER		183.6	20.6	2,157	2,718	3,279					
DOUG FIR		249.8	28.1	1,735	2,413	3,090					
TOTAL		81.7	9.2	11,879	13,080	14,281	266	67	30		

TC TSTATS				STATISTICS				PAGE 1				
				PROJECT WOODY				DATE 3/14/2019				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt			
04N	08W	27	A1L	LEAV	171.00	79	402	1	W			
			PLOTS	TREES	TREES	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
				PER PLOT								
TOTAL			79	402	5.1							
CRUISE			40	201	5.0	10,226	2.0					
DBH COUNT												
REFOREST												
COUNT			37	194	5.2							
BLANKS			2									
100 %												
STAND SUMMARY												
			SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
HEMLEAV			142	38.0	23.6	72	23.7	114.9	21,364	20,011	4,982	4,818
DOUGLEAV			42	11.9	24.8	85	8.0	40.0	8,690	8,457	1,912	1,880
SNAG			10	5.7	17.8	43	2.3	9.8	234		64	
ALDRLEAV			3	3.7	11.2	37	0.8	2.6	124	124	56	56
SPRUCELV			2	.2	40.3	77	0.3	2.1	373	354	87	87
CEDLEAV			2	.3	33.4	62	0.3	1.7	112	82	46	40
TOTAL			201	59.8	22.9	69	35.7	171.0	30,897	29,027	7,146	6,880
										CONFIDENCE LIMITS OF THE SAMPLE		
										68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR		
CL: 68.1 %			COEFF		SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD: 1.0			VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
HEMLEAV			95.2	8.0	955	1,037	1,120					
DOUGLEAV			54.4	8.4	917	1,001	1,085					
SNAG												
ALDRLEAV			68.6	47.5	19	37	54					
SPRUCELV			51.7	48.4	862	1,670	2,478					
CEDLEAV			16.8	15.7	249	295	341					
TOTAL			94.4	6.7	898	962	1,026		356	89	40	
CL: 68.1 %			COEFF		TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0			VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
HEMLEAV			73.3	8.2	35	38	41					
DOUGLEAV			136.6	15.4	10	12	14					
SNAG			232.8	26.2	4	6	7					
ALDRLEAV			354.1	39.8	2	4	5					
SPRUCELV			395.8	44.5	0	0	0					
CEDLEAV			538.4	60.5	0	0	0					
TOTAL			48.8	5.5	57	60	63		95	24	11	
CL: 68.1 %			COEFF		BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0			VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
HEMLEAV			55.2	6.2	108	115	122					
DOUGLEAV			126.3	14.2	34	40	46					
SNAG			199.5	22.4	8	10	12					
ALDRLEAV			351.0	39.5	2	3	4					
SPRUCELV			387.2	43.5	1	2	3					
CEDLEAV			538.4	60.5	1	2	3					
TOTAL			31.0	3.5	165	171	177		38	10	4	
CL: 68.1 %			COEFF		NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0			VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
HEMLEAV			60.8	6.8	18,644	20,011	21,378					
DOUGLEAV			128.0	14.4	7,240	8,457	9,674					
SNAG												
ALDRLEAV			373.1	41.9	72	124	176					
SPRUCELV			387.3	43.5	200	354	508					
CEDLEAV			538.4	60.5	32	82	131					

TC TSTATS				STATISTICS				PAGE	2
				PROJECT WOODY				DATE	3/14/2019
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
04N	08W	27	A1L	LEAV	171.00	79	402	1	W
CL:	68.1 %	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.
SD:	1.0	VAR.	S.E. %	LOW	AVG	HIGH	5	10	15
TOTAL		40.5	4.6	27,706	29,027	30,349	65	16	7

TC TSTATS				STATISTICS				PAGE	1
				PROJECT WOODY				DATE	3/14/2019
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
04N	08W	27	A1LV	LEAV	14.00	79	644	1	W

			TREES	ESTIMATED	PERCENT
			PER PLOT	TOTAL	SAMPLE
	PLOTS	TREES		TREES	TREES
TOTAL	79	644	8.2		
CRUISE	41	296	7.2	1,832	16.2
DBH COUNT					
REFOREST					
COUNT	38	331	8.7		
BLANKS					
100 %					

STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
HEMLEAV	200	85.8	19.5	61	40.4	178.7	30,590	28,775	7,380	7,155
DOUGLEAV	54	16.5	24.2	86	10.7	52.8	11,095	10,796	2,487	2,456
ALDRLEAV	30	21.5	15.6	48	7.2	28.5	2,909	2,813	877	867
SNAG	8	6.6	16.9	40	2.5	10.2				
SPRUCELV	2	.2	40.3	77	0.3	2.1	373	354	87	87
CEDLEAV	2	.3	33.4	62	0.3	1.7	111	80	46	40
TOTAL	296	130.8	19.6	61	61.9	274.0	45,078	42,819	10,876	10,604

CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										

CL: 68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
HEMLEAV	111.4	7.9	753	818	882				
DOUGLEAV	57.5	7.8	839	910	982				
ALDRLEAV	108.4	20.1	158	198	238				
SNAG									
SPRUCELV	51.7	48.4	862	1,670	2,478				
CEDLEAV	14.6	13.7	250	290	330				
TOTAL	109.5	6.4	704	752	800	479	120	53	

CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
HEMLEAV	81.0	9.1	78	86	94				
DOUGLEAV	137.8	15.5	14	16	19				
ALDRLEAV	189.2	21.3	17	22	26				
SNAG	233.5	26.2	5	7	8				
SPRUCELV	395.8	44.5	0	0	0				
CEDLEAV	538.4	60.5	0	0	0				
TOTAL	52.5	5.9	123	131	139	110	28	12	

CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
HEMLEAV	62.4	7.0	166	179	191				
DOUGLEAV	135.2	15.2	45	53	61				
ALDRLEAV	180.2	20.3	23	29	34				
SNAG	206.5	23.2	8	10	13				
SPRUCELV	387.2	43.5	1	2	3				
CEDLEAV	538.4	60.5	1	2	3				
TOTAL	36.1	4.1	263	274	285	52	13	6	

CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
HEMLEAV	65.6	7.4	26,653	28,775	30,898				
DOUGLEAV	136.8	15.4	9,135	10,796	12,456				
ALDRLEAV	186.9	21.0	2,222	2,813	3,404				
SNAG									
SPRUCELV	387.3	43.5	200	354	508				
CEDLEAV	538.4	60.5	32	80	129				

TC TSTATS				STATISTICS				PAGE	2
				PROJECT	WOODY			DATE	3/14/2019
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
04N	08W	27	A1LV	LEAV	14.00	79	644	1	W
CL: 68.1 %		COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.		S.E.%	LOW	AVG	HIGH	5	10	15
TOTAL		47.0	5.3	40,558	42,819	45,079	88	22	10

TC TSTATS				STATISTICS				PAGE 1			
				PROJECT		WOODY		DATE 3/14/2019			
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
04N	08W	27	1ABC	00MC	9.00	12	96	1	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
					TREES	TREES					
PLOTS		TREES		TREES							
TOTAL		12	96	8.0							
CRUISE		8	50	6.3		1,444	3.5				
DBH COUNT											
REFOREST											
COUNT		4	39	9.8							
BLANKS											
100 %											
STAND SUMMARY											
SAMPLE		TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
TREES		/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
WHEMLOCK		31	94.8	17.2	62	36.9	153.3	27,334	26,680	6,679	6,632
DOUG FIR		10	35.5	23.8	92	22.5	110.0	22,427	22,132	5,185	5,185
SNAG		4	14.6	15.8	54	5.0	20.0	852	796	214	214
R ALDER		2	12.3	14.1	44	3.5	13.3	1,151	1,151	387	387
HEMLEAV		2	.9	44.3	90	1.5	10.0	2,165	1,942	443	411
S SPRUCE		1	2.4	16.0	66	0.8	3.3	430	430	136	136
TOTAL		50	160.5	18.8	67	71.5	310.0	54,358	53,129	13,045	12,965
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL: 68.1 %	COEFF	SAMPLE TREES - BF					# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
WHEMLOCK		121.0	21.7	530	677	824					
DOUG FIR		47.9	15.9	615	732	849					
SNAG		200.0	114.3		105	225					
R ALDER		67.6	63.3	42	115	188					
HEMLEAV		34.1	31.9	1,453	2,135	2,817					
S SPRUCE											
TOTAL		113.9	16.1	561	668	775	518	129	58		
CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
WHEMLOCK		96.1	28.9	67	95	122					
DOUG FIR		132.8	40.0	21	35	50					
SNAG		221.8	66.8	5	15	24					
R ALDER		233.5	70.3	4	12	21					
HEMLEAV		181.9	54.8	0	1	1					
S SPRUCE		346.4	104.3		2	5					
TOTAL		34.6	10.4	144	160	177	52	13	6		
CL: 68.1 %	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
WHEMLOCK		61.8	18.6	125	153	182					
DOUG FIR		129.8	39.1	67	110	153					
SNAG		180.9	54.5	9	20	31					
R ALDER		233.5	70.3	4	13	23					
HEMLEAV		180.9	54.5	5	10	15					
S SPRUCE		346.4	104.3		3	7					
TOTAL		1.9	.6	308	310	312	0	0	0		
CL: 68.1 %	COEFF	NET BF/ACRE					# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
WHEMLOCK		65.6	19.7	21,413	26,680	31,946					
DOUG FIR		128.6	38.7	13,564	22,132	30,700					
SNAG		233.5	70.3	236	796	1,355					
R ALDER		233.5	70.3	341	1,151	1,960					

TC TSTATS				STATISTICS				PAGE	2
				PROJECT	WOODY			DATE	3/14/2019
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
04N	08W	27	1ABC	00MC	9.00	12	96	1	W
CL:	68.1%	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15
HEMLEAV		182.3	54.9	876	1,942	3,008			
S SPRUCE		346.4	104.3		430	878			
TOTAL		32.3	9.7	47,965	53,129	58,293	45	11	5

TC TSTATS				STATISTICS				PAGE	1			
				PROJECT	WOODY			DATE	3/14/2019			
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt			
04N	08W	27	1ABCT	TAKE	9.00	12	88	1	W			
				TREES	ESTIMATED	PERCENT						
				PER PLOT	TOTAL	SAMPLE						
				TREES	TREES	TREES						
TOTAL			12	88	7.3							
CRUISE			8	44	5.5	1,304		3.4				
DBH COUNT												
REFOREST												
COUNT			4	38	9.5							
BLANKS												
100 %												
STAND SUMMARY												
SAMPLE			TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
TREES			/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
WHEMLOCK			31	94.8	17.2	62	36.9	153.3	27,351	26,697	6,680	6,633
DOUG FIR			10	35.5	23.8	92	22.5	110.0	22,394	22,100	5,186	5,186
R ALDER			2	12.3	14.1	44	3.5	13.3	1,151	1,151	387	387
S SPRUCE			1	2.4	16.0	66	0.8	3.3	430	430	136	136
TOTAL			44	144.9	18.8	68	64.5	280.0	51,326	50,377	12,389	12,341
CONFIDENCE LIMITS OF THE SAMPLE												
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR												
CL:	68.1 %	COEFF	SAMPLE TREES - BF					# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5		10	15		
WHEMLOCK			121.0	21.7	530	677	824					
DOUG FIR			47.9	16.0	614	731	848					
R ALDER			67.6	63.3	42	115	188					
S SPRUCE												
TOTAL			109.9	16.6	545	653	761	483	121	54		
CL:	68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5		10	15		
WHEMLOCK			96.1	28.9	67	95	122					
DOUG FIR			132.8	40.0	21	35	50					
R ALDER			233.5	70.3	4	12	21					
S SPRUCE			346.4	104.3		2	5					
TOTAL			47.3	14.2	124	145	166	97	24	11		
CL:	68.1 %	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5		10	15		
WHEMLOCK			61.8	18.6	125	153	182					
DOUG FIR			129.8	39.1	67	110	153					
R ALDER			233.5	70.3	4	13	23					
S SPRUCE			346.4	104.3		3	7					
TOTAL			25.8	7.8	258	280	302	29	7	3		
CL:	68.1 %	COEFF	NET BF/ACRE					# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5		10	15		
WHEMLOCK			65.6	19.8	21,422	26,697	31,972					
DOUG FIR			128.6	38.7	13,543	22,100	30,656					
R ALDER			233.5	70.3	341	1,151	1,960					
S SPRUCE			346.4	104.3		430	878					
TOTAL			36.3	10.9	44,868	50,377	55,887	57	14	6		

TC TSTATS				STATISTICS				PAGE	1																						
				PROJECT				DATE	3/14/2019																						
				WOODY																											
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt																						
04N	08W	27	A2	00PC	70.00	47	293	1	W																						
				TREES	ESTIMATED	PERCENT																									
				PER PLOT	TOTAL	SAMPLE																									
					TREES	TREES																									
PLOTS		TREES																													
TOTAL	47	293	6.2																												
CRUISE	26	130	5.0	7,052	1.8																										
DBH COUNT																															
REFOREST																															
COUNT	20	144	7.2																												
BLANKS	1																														
100 %																															
STAND SUMMARY																															
SAMPLE		TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET																					
TREES		/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC																					
HEMLEAV		53	34.2	21.6	61	18.6	86.5	15,941	15,003	3,625	3,515																				
R ALDER		47	33.2	17.5	54	13.3	55.8	5,438	5,286	1,721	1,684																				
CEDLEAV		2	1.9	38.7	62	2.5	15.7	1,713	1,713	486	486																				
ALDRLEAV		2	16.7	10.9	29	3.3	10.7	841	841	240	240																				
WHEMLOCK		4	8.9	13.9	32	2.5	9.3	745	598	211	189																				
SPRUCELV		7	1.3	34.6	75	1.5	8.6	1,580	1,558	376	376																				
SNAG		4	2.2	25.7	38	1.6	7.9																								
DOUGLEAV		4	1.0	36.0	111	1.2	7.2	1,882	1,745	377	352																				
S SPRUCE		3	.8	34.0	78	0.9	5.0	715	715	199	199																				
MAPLELV		2	.4	26.7	36	0.3	1.4	72	61	27	27																				
DOUG FIR		2	.2	36.0	111	0.2	1.4	364	364	74	74																				
TOTAL		130	100.7	19.5	51	47.4	209.5	29,290	27,885	7,336	7,141																				
CONFIDENCE LIMITS OF THE SAMPLE																															
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR																															
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.																						
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15																						
HEMLEAV		104.6	14.3	831	971	1,110																									
R ALDER		66.6	9.7	171	189	207																									
CEDLEAV		116.3	108.9		1,015	2,121																									
ALDRLEAV		64.3	60.2	22	55	88																									
WHEMLOCK		64.9	37.1	55	88	120																									
SPRUCELV		105.4	42.9	1,010	1,769	2,527																									
SNAG																															
DOUGLEAV		64.9	37.1	1,375	2,185	2,995																									
S SPRUCE																															
MAPLELV		110.0	103.0		225	457																									
DOUG FIR				1,800	1,800	1,800																									
TOTAL		138.4	12.2	622	708	795	765	191	85																						
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.																						
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15																						
HEMLEAV		94.1	13.7	29	34	39																									
R ALDER		124.6	18.2	27	33	39																									
CEDLEAV		243.5	35.5	1	2	3																									
ALDRLEAV		227.6	33.2	11	17	22																									
WHEMLOCK		300.0	43.7	5	9	13																									
SPRUCELV		247.3	36.0	1	1	2																									
SNAG		208.9	30.4	2	2	3																									
DOUGLEAV		259.0	37.7	1	1	1																									
S SPRUCE		484.6	70.6	0	1	1																									
MAPLELV		508.6	74.1	0	0	1																									
DOUG FIR		685.6	99.9	0	0	0																									
TOTAL		64.1	9.3	91	101	110	164	41	18																						

TC TSTATS				STATISTICS				PAGE	2
				PROJECT WOODY				DATE	3/14/2019
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
04N	08W	27	A2	00PC	70.00	47	293	1	W
CL:	68.1 %	COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.	INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15
CL:	68.1 %	COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.	INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
HEMLEAV		85.2	12.4	76	87	97			
R ALDER		114.0	16.6	47	56	65			
CEDLEAV		243.4	35.5	10	16	21			
ALDRLEAV		227.3	33.1	7	11	14			
WHEMLOCK		279.1	40.7	6	9	13			
SPRUCELV		251.3	36.6	5	9	12			
SNAG		203.4	29.6	6	8	10			
DOUGLEAV		258.1	37.6	4	7	10			
S SPRUCE		484.6	70.6	1	5	9			
MAPLELV		479.5	69.9	0	1	2			
DOUG FIR		685.6	99.9	0	1	3			
TOTAL		42.6	6.2	197	210	223	72	18	8
CL:	68.1 %	COEFF		NET BF/ACRE			# OF PLOTS REQ.	INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
HEMLEAV		86.0	12.5	13,124	15,003	16,883			
R ALDER		130.2	19.0	4,283	5,286	6,289			
CEDLEAV		245.8	35.8	1,099	1,713	2,326			
ALDRLEAV		228.2	33.3	562	841	1,121			
WHEMLOCK		294.3	42.9	342	598	855			
SPRUCELV		252.5	36.8	985	1,558	2,132			
SNAG									
DOUGLEAV		255.1	37.2	1,096	1,745	2,394			
S SPRUCE		484.6	70.6	210	715	1,219			
MAPLELV		560.1	81.6	11	61	110			
DOUG FIR		685.6	99.9	0	364	728			
TOTAL		45.8	6.7	26,024	27,885	29,745	84	21	9

TC TSTATS				STATISTICS				PAGE	1
				PROJECT WOODY				DATE	3/14/2019
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
04N	08W	27	A2T	TAKE	70.00	47	99	1	W

			TREES	ESTIMATED	PERCENT
			PER PLOT	TOTAL	SAMPLE
	PLOTS	TREES		TREES	TREES
TOTAL	47	99	2.1		
CRUISE	22	55	2.5	2,985	1.8
DBH COUNT					
REFOREST					
COUNT	16	43	2.7		
BLANKS	9				
100 %					

STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
R ALDER	46	32.8	17.6	54	13.1	55.1	5,356	5,203	1,696	1,658
WHEMLOCK	4	8.9	13.9	32	2.5	9.3	745	598	211	189
S SPRUCE	3	.8	34.0	78	0.9	5.0	715	715	199	199
DOUG FIR	2	.2	36.0	111	0.2	1.4	364	364	74	74
TOTAL	55	42.6	17.4	50	16.9	70.8	7,180	6,880	2,180	2,120

CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										

CL: 68.1 %	COEFF	SAMPLE TREES - BF					# OF TREES REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
R ALDER	67.2	9.9	171	189	208					
WHEMLOCK	64.9	37.1	55	88	120					
S SPRUCE										
DOUG FIR			1,800	1,800	1,800					
TOTAL	125.5	17.2	240	290	340		629	157	70	

CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
R ALDER	125.9	18.3	27	33	39					
WHEMLOCK	300.0	43.7	5	9	13					
S SPRUCE	484.6	70.6	0	1	1					
DOUG FIR	685.6	99.9	0	0	0					
TOTAL	102.6	15.0	36	43	49		421	105	47	

CL: 68.1 %	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
R ALDER	115.6	16.8	46	55	64					
WHEMLOCK	279.1	40.7	6	9	13					
S SPRUCE	484.6	70.6	1	5	9					
DOUG FIR	685.6	99.9	0	1	3					
TOTAL	87.0	12.7	62	71	80		302	76	34	

CL: 68.1 %	COEFF	NET BF/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
R ALDER	132.2	19.3	4,200	5,203	6,205					
WHEMLOCK	294.3	42.9	342	598	855					
S SPRUCE	484.6	70.6	210	715	1,219					
DOUG FIR	685.6	99.9	0	364	728					
TOTAL	103.5	15.1	5,842	6,880	7,918		428	107	48	

TC TSTATS				STATISTICS				PAGE	1
				PROJECT WOODY				DATE	3/14/2019
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
04N	08W	27	A2L	LEAV	70.00	47	193	1	W

			TREES	ESTIMATED	PERCENT
			PER PLOT	TOTAL	SAMPLE
	PLOTS	TREES		TREES	TREES
TOTAL	47	193	4.1		
CRUISE	21	74	3.5	4,033	1.8
DBH COUNT					
REFOREST					
COUNT	22	115	5.2		
BLANKS	4				
100 %					

STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
HEMLEAV	53	34.2	21.6	61	18.6	86.5	15,941	15,003	3,625	3,515
CEDLEAV	2	1.9	38.7	62	2.5	15.7	1,713	1,713	486	486
ALDRLEAV	2	16.7	10.9	29	3.3	10.7	841	841	240	240
SPRUCELV	7	1.3	34.6	75	1.5	8.6	1,580	1,558	376	376
SNAG	4	2.2	25.7	38	1.6	7.9				
DOUGLEAV	4	1.0	36.0	111	1.2	7.2	1,882	1,745	377	352
MAPLELV	2	.4	26.7	36	0.3	1.4	72	61	27	27
TOTAL	74	57.6	21.0	52	30.1	138.0	22,028	20,921	5,131	4,995

CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										

CL: 68.1 %	COEFF	SAMPLE TREES - BF					# OF TREES REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
HEMLEAV	104.6	14.3	831	971	1,110					
CEDLEAV	116.3	108.9		1,015	2,121					
ALDRLEAV	64.3	60.2	22	55	88					
SPRUCELV	105.4	42.9	1,010	1,769	2,527					
SNAG										
DOUGLEAV	64.9	37.1	1,375	2,185	2,995					
MAPLELV	110.0	103.0		225	457					
TOTAL	114.5	13.3	881	1,016	1,151		523	131		58

CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
HEMLEAV	94.1	13.7	29	34	39					
CEDLEAV	243.5	35.5	1	2	3					
ALDRLEAV	227.6	33.2	11	17	22					
SPRUCELV	247.3	36.0	1	1	2					
SNAG	208.9	30.4	2	2	3					
DOUGLEAV	259.0	37.7	1	1	1					
MAPLELV	508.6	74.1	0	0	1					
TOTAL	72.0	10.5	52	58	64		207	52		23

CL: 68.1 %	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
HEMLEAV	85.2	12.4	76	87	97					
CEDLEAV	243.4	35.5	10	16	21					
ALDRLEAV	227.3	33.1	7	11	14					
SPRUCELV	251.3	36.6	5	9	12					
SNAG	203.4	29.6	6	8	10					
DOUGLEAV	258.1	37.6	4	7	10					
MAPLELV	479.5	69.9	0	1	2					
TOTAL	56.4	8.2	127	138	149		127	32		14

CL: 68.1 %	COEFF	NET BF/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
HEMLEAV	86.0	12.5	13,124	15,003	16,883					
CEDLEAV	245.8	35.8	1,099	1,713	2,326					

TC TSTATS				STATISTICS			PAGE	2	
				PROJECT			DATE	3/14/2019	
				WOODY					
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
04N	08W	27	A2L	LEAV	70.00	47	193	1	W
CL: 68.1 %		COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.
SD: 1.0		VAR.		S.E.%		LOW	AVG	HIGH	
								5	10
									15
ALDRLEAV		228.2	33.3	562	841	1,121			
SPRUCELV		252.5	36.8	985	1,558	2,132			
SNAG									
DOUGLEAV		255.1	37.2	1,096	1,745	2,394			
MAPLELV		560.1	81.6	11	61	110			
TOTAL		62.6	9.1	19,013	20,921	22,830	156	39	17

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT WOODY				DATE	3/14/2019		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
04N	08W	27	A34	00MC	92.00	59	347	1	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
					TREES	TREES					
PLOTS		TREES									
TOTAL		59	347	5.9							
CRUISE		23	127	5.5		11,648	1.1				
DBH COUNT											
REFOREST											
COUNT		36	216	6.0							
BLANKS											
100 %											
STAND SUMMARY											
SAMPLE		TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
TREES		/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
WHEMLOCK		59	54.7	18.7	66	24.1	104.4	17,621	16,728	4,446	4,367
R ALDER		41	58.2	15.9	41	20.1	80.0	6,491	6,158	2,117	2,066
DOUG FIR		8	7.1	26.5	95	5.3	27.1	5,626	5,537	1,287	1,287
S SPRUCE		11	2.5	33.3	76	2.6	14.9	3,794	3,467	752	723
WR CEDAR		3	.4	38.1	57	0.5	3.4	416	331	105	89
BL MAPLE		3	2.6	13.9	43	0.7	2.7	220	118	72	42
SNAG		2	1.1	21.4	45	0.6	2.7			23	
TOTAL		127	126.6	18.5	56	54.8	235.3	34,169	32,339	8,802	8,574
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL:	68.1 %	COEFF		SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
WHEMLOCK		105.1	13.7	526	609	692					
R ALDER		81.4	12.7	118	135	152					
DOUG FIR		89.8	33.9	680	1,029	1,377					
S SPRUCE		71.0	22.4	2,341	3,018	3,695					
WR CEDAR		65.5	45.3	660	1,207	1,753					
BL MAPLE		124.9	86.4	9	67	124					
SNAG											
TOTAL		161.8	14.3	585	683	781	1,046	261	116		
CL:	68.1 %	COEFF		TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
WHEMLOCK		129.8	16.9	45	55	64					
R ALDER		126.9	16.5	49	58	68					
DOUG FIR		199.4	25.9	5	7	9					
S SPRUCE		249.3	32.4	2	2	3					
WR CEDAR		382.2	49.7	0	0	1					
BL MAPLE		399.2	51.9	1	3	4					
SNAG		381.1	49.6	1	1	2					
TOTAL		63.0	8.2	116	127	137	159	40	18		
CL:	68.1 %	COEFF		BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
WHEMLOCK		106.2	13.8	90	104	119					
R ALDER		121.1	15.7	67	80	93					
DOUG FIR		198.3	25.8	20	27	34					
S SPRUCE		210.7	27.4	11	15	19					
WR CEDAR		331.5	43.1	2	3	5					
BL MAPLE		374.0	48.6	1	3	4					
SNAG		374.0	48.6	1	3	4					
TOTAL		44.5	5.8	222	235	249	79	20	9		
CL:	68.1 %	COEFF		NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		

TC TSTATS				STATISTICS				PAGE	2
				PROJECT WOODY				DATE	3/14/2019
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
04N	08W	27	A34	00MC	92.00	59	347	1	W
CL:	68.1 %	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15
WHEMLOCK		104.2	13.5	14,461	16,728	18,994			
R ALDER		117.0	15.2	5,220	6,158	7,095			
DOUG FIR		199.8	26.0	4,098	5,537	6,976			
S SPRUCE		221.7	28.8	2,467	3,467	4,467			
WR CEDAR		343.1	44.6	183	331	479			
BL MAPLE		499.0	64.9	41	118	194			
SNAG									
TOTAL		59.7	7.8	29,826	32,339	34,851	142	36	16

TC PSTATS				PROJECT STATISTICS				PAGE	1			
				PROJECT	WOODY			DATE	3/14/2019			
TWP	RGE	SC	TRACT	TYPE	ACRES		PLOTS	TREES	CuFt	BdFt		
04N	08	27	A34T	TAKE	92.00		59	338	1	W		
				TREES	ESTIMATED		PERCENT					
PLOTS				TREES	TOTAL		SAMPLE					
				PER PLOT	TREES		TREES					
TOTAL			59	338	5.7							
CRUISE			22	122	5.5		11,508		1.1			
DBH COUNT												
REFOREST												
COUNT			37	216	5.8							
BLANKS												
100 %												
STAND SUMMARY												
SAMPLE			TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
TREES			/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
WHEMLOCK			59	54.7	18.7	66	24.1	104.4	17,579	16,685	4,432	4,354
R ALDER			41	58.2	15.9	41	20.1	80.0	6,491	6,158	2,117	2,066
DOUG FIR			8	7.1	26.5	95	5.3	27.1	5,626	5,537	1,288	1,288
S SPRUCE			11	2.5	33.3	76	2.6	14.9	3,794	3,467	752	723
BL MAPLE			3	2.6	13.9	43	0.7	2.7	220	118	72	42
TOTAL			122	125.1	18.3	56	53.5	229.2	33,710	31,965	8,662	8,473
CONFIDENCE LIMITS OF THE SAMPLE												
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR												
CL	68.1	COEFF	SAMPLE TREES - BF					# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5		10	15		
WHEMLOCK			105.5	13.7	523	606	689					
R ALDER			81.4	12.7	118	135	152					
DOUG FIR			89.8	33.9	680	1,029	1,377					
S SPRUCE			71.0	22.4	2,341	3,018	3,695					
BL MAPLE			124.9	86.4	9	67	124					
TOTAL			164.3	14.9	579	680	781	1,077	269	120		
CL	68.1	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5		10	15		
WHEMLOCK			129.8	16.9	45	55	64					
R ALDER			126.9	16.5	49	58	68					
DOUG FIR			199.4	25.9	5	7	9					
S SPRUCE			249.3	32.4	2	2	3					
BL MAPLE			399.2	51.9	1	3	4					
TOTAL			64.3	8.4	115	125	136	165	41	18		
CL	68.1	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5		10	15		
WHEMLOCK			106.2	13.8	90	104	119					
R ALDER			121.1	15.7	67	80	93					
DOUG FIR			198.3	25.8	20	27	34					
S SPRUCE			210.7	27.4	11	15	19					
BL MAPLE			374.0	48.6	1	3	4					
TOTAL			47.6	6.2	215	229	243	91	23	10		
CL	68.1	COEFF	NET BF/ACRE					# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5		10	15		
WHEMLOCK			104.2	13.6	14,423	16,685	18,948					
R ALDER			117.0	15.2	5,220	6,158	7,095					
DOUG FIR			199.8	26.0	4,098	5,537	6,976					
S SPRUCE			221.7	28.8	2,467	3,467	4,467					
BL MAPLE			499.0	64.9	41	118	194					
TOTAL			61.1	7.9	29,425	31,965	34,505	149	37	17		

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT WOODY				DATE	3/14/2019		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
04N	08W	27	A5RW	RW	7.00	126	901	1	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
					TREES	TREES					
TOTAL		126	901	7.2							
CRUISE		65	414	6.4	777	53.3					
DBH COUNT											
REFOREST											
COUNT		60	470	7.8							
BLANKS		1									
100 %											
STAND SUMMARY											
SAMPLE		TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
TREES		/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
WHEMLOCK		256	69.3	19.7	60	33.1	147.2	25,332	23,801	6,046	5,857
R ALDER		79	29.1	16.4	51	10.5	42.7	4,221	4,097	1,314	1,291
DOUG FIR		61	10.5	25.0	88	7.2	35.7	7,706	7,468	1,709	1,681
WR CEDAR		4	1.0	35.7	62	1.2	6.9	606	544	201	188
S SPRUCE		12	.9	35.2	76	1.1	6.4	1,103	1,084	271	271
BL MAPLE		2	.1	26.7	36	0.1	.5	27	23	10	10
TOTAL		414	110.9	19.9	60	53.7	239.5	38,995	37,017	9,550	9,298
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK		111.6	7.0	778	836	895					
R ALDER		86.7	9.7	171	189	208					
DOUG FIR		66.6	8.5	938	1,026	1,113					
WR CEDAR		122.0	69.7	198	655	1,112					
S SPRUCE		75.8	25.2	1,377	1,842	2,307					
BL MAPLE		110.0	103.0		225	457					
TOTAL		115.3	5.7	717	760	803	531	133	59		
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK		94.6	8.4	63	69	75					
R ALDER		151.6	13.5	25	29	33					
DOUG FIR		174.6	15.5	9	11	12					
WR CEDAR		366.2	32.6	1	1	1					
S SPRUCE		377.2	33.6	1	1	1					
BL MAPLE		837.3	74.5	0	0	0					
TOTAL		60.1	5.3	105	111	117	144	36	16		
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK		76.3	6.8	137	147	157					
R ALDER		144.8	12.9	37	43	48					
DOUG FIR		167.3	14.9	30	36	41					
WR CEDAR		364.3	32.4	5	7	9					
S SPRUCE		374.0	33.3	4	6	9					
BL MAPLE		790.5	70.4	0	1	1					
TOTAL		41.8	3.7	231	240	248	70	17	8		
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK		78.1	6.9	22,147	23,801	25,454					
R ALDER		154.9	13.8	3,532	4,097	4,662					
DOUG FIR		168.1	15.0	6,351	7,468	8,586					
WR CEDAR		368.4	32.8	366	544	722					

TC TSTATS				STATISTICS				PAGE	2
				PROJECT WOODY				DATE	3/14/2019
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
04N	08W	27	A5RW	RW	7.00	126	901	1	W
CL:	68.1 %	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15
S SPRUCE		373.3	33.2	724	1,084	1,444			
BL MAPLE		920.1	81.9	4	23	41			
TOTAL		<i>50.9</i>	<i>4.5</i>	<i>35,339</i>	<i>37,017</i>	<i>38,695</i>	<i>104</i>	<i>26</i>	<i>12</i>

TC PSTNDSUM		Stand Table Summary										Page Date:		1 3/14/2019	
T04N R08W S27 TyTAKE THRU T04N R08W S27 TyRW					Project WOODY					Time: 10:57:11AM					
					Acres 349.00					Grown Year:					
S Spec	T	Tot			Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	T o t a l s		
		DBH	Sample Trees	FF 16'				Av Ht	Net Cu.Ft.				Net Bd.Ft.	Tons	Cunits
H		8	3	85	66	1.949	.68	1.95	9.1	36.3		18	71	62	25
H		9	6	85	29	3.754	1.66	3.75	6.0	20.0		23	75	79	26
H		10	9	86	70	4.014	2.19	4.87	11.6	39.8		57	194	197	68
H		11	11	86	54	4.781	3.16	5.49	12.9	38.4		71	211	248	74
H		12	14	85	58	4.841	3.80	5.60	17.4	49.7		97	278	339	97
H		13	12	87	82	2.494	2.30	3.84	21.2	74.2		82	285	285	100
H		14	20	87	84	4.226	4.52	7.98	20.8	72.7		166	580	578	203
H		15	20	88	79	3.458	4.24	6.07	24.4	83.1		148	504	517	176
H		16	12	86	59	1.563	2.18	2.31	23.6	72.6		54	168	190	59
H		17	16	85	92	2.448	3.86	4.90	31.1	105.6		152	517	531	181
H		18	18	87	89	2.178	3.85	4.12	37.5	125.1		154	515	539	180
H		19	14	88	106	.948	1.87	2.18	39.8	142.7		87	311	303	109
H		20	29	86	97	2.243	4.89	4.85	42.6	152.7		207	740	721	258
H		21	12	87	86	.687	1.65	1.39	45.8	152.6		64	212	222	74
H		22	20	87	104	1.739	4.59	4.30	48.0	190.3		207	818	721	286
H		23	21	85	94	1.148	3.31	2.46	52.4	193.1		129	475	450	166
H		24	14	87	109	.897	2.82	2.27	58.5	231.0		133	525	464	183
H		25	19	86	105	.331	1.13	.68	72.5	272.0		49	186	173	65
H		26	11	87	103	.456	1.68	1.08	69.6	280.3		75	304	263	106
H		27	10	87	114	.354	1.41	.92	74.1	321.9		68	296	238	103
H		28	10	87	102	.240	1.03	.60	69.9	278.0		42	167	147	58
H		29	13	85	90	.462	2.12	.95	73.1	278.6		69	265	242	92
H		30	5	85	113	.290	1.42	.67	99.9	416.6		67	281	235	98
H		31	5	86	134	.033	.17	.10	95.9	451.8		10	45	33	16
H		32	12	87	122	.303	1.69	.80	109.2	505.7		88	406	306	142
H		33	3	84	86	.006	.03	.01	96.8	394.0		1	4	3	1
H		34	5	86	118	.100	.63	.30	104.7	486.2		31	144	108	50
H		35	5	86	117	.213	1.42	.43	120.0	556.6		51	238	179	83
H		36	5	84	142	.025	.17	.07	136.8	691.1		10	49	34	17
H		37	10	86	126	.076	.57	.23	130.0	623.9		30	142	103	50
H		38	5	89	148	.065	.51	.20	163.2	757.1		32	148	111	52
H		39	2	84	111	.003	.02	.01	122.2	675.0		1	4	2	1
H		40	3	84	127	.004	.03	.01	138.3	703.3		2	8	6	3
H		41	3	90	124	.066	.61	.20	155.3	845.2		31	167	107	58
H		42	2	85	125	.002	.02	.01	165.7	753.3		1	5	4	2
H		43	4	83	152	.050	.50	.15	192.3	949.4		29	142	100	49
H		44	1	83	79	.001	.01	.00	185.0	770.0		0	2	1	1
H		45	1	80	132	.001	.01	.00	194.0	930.0		1	3	2	1
H		46	1	86	157	.011	.13	.03	238.0	1233.3		8	41	28	14
H		47	5	85	120	.005	.06	.01	202.4	1030.0		3	14	9	5
H		48	5	84	114	.005	.06	.01	223.0	1069.2		2	12	9	4
H		49	1	88	127	.001	.01	.00	236.7	1256.7		1	3	2	1
H		50	2	80	131	.002	.02	.01	189.3	995.0		1	5	3	2
H		51	4	82	126	.003	.05	.01	220.5	1097.5		2	11	8	4
H		52	1	83	112	.001	.01	.00	229.0	963.3		1	2	2	1
H		56	1	86	107	.001	.01	.00	262.3	1280.0		1	3	2	1
H		57	1	83	132	.001	.01	.00	315.0	1630.0		1	3	2	1
H		68	1	89	135	.000	.01	.00	387.0	1800.0		0	2	1	1
H		Totals	407	86	75	46.478	67.15	75.82	33.7	126.3		2,553	9,579	8,910	3,343
A		10	2	86	31	.040	.02	.04	8.5	20.0		0	1	1	0
A		11	2	86	39	1.559	1.03	1.56	11.5	30.0		18	47	63	16
A		12	7	87	29	2.225	1.75	1.58	13.5	42.9		21	68	75	24
A		13	16	87	60	3.773	3.48	5.42	17.4	52.9		94	287	330	100

TC		PSTNDSUM		Stand Table Summary								Page		2				
												Date:		3/14/2019				
T04N R08W S27 TyTAKE THRU T04N R08W S27 TyRW				Project				WOODY				Time:		10:57:11AM				
				Acres				349.00				Grown Year:						
S Spec T			Tot					Average Log				Net		Net		Totals		
	DBH	Sample Trees	FF 16'	Av Ht	Trees/ Acre	BA/ Acre	Logs Acre	Net Cu.Ft.	Net Bd.Ft.	Tons/ Acre	Cu.Ft. Acre	Bd.Ft. Acre	Tons	Cunits	MBF			
A	14	16	86	63	3.469	3.71	5.74	19.3	59.3		111	341		386	119			
A	15	23	87	59	4.312	5.29	6.75	21.3	66.0		144	446		503	156			
A	16	20	86	62	4.295	6.00	6.79	24.7	74.7		168	508		587	177			
A	17	21	87	66	3.811	6.01	6.20	28.3	86.7		175	537		612	188			
A	18	17	86	65	1.673	2.96	2.20	33.7	99.8		74	220		259	77			
A	19	8	86	57	1.417	2.79	2.18	33.6	87.9		73	192		256	67			
A	20	18	86	68	1.497	3.27	2.64	39.0	118.9		103	314		360	110			
A	21	18	86	77	1.778	4.28	3.33	43.7	144.3		146	481		508	168			
A	22	5	86	73	.472	1.25	.94	45.2	153.6		43	145		149	51			
A	23	5	86	73	.352	1.02	.62	55.5	178.4		34	110		120	38			
A	25	3	86	95	.292	1.00	.73	57.4	231.2		42	168		146	59			
A	27	4	86	77	.184	.73	.37	68.7	234.5		25	86		88	30			
A	28	2	86	84	.059	.25	.12	52.0	195.0		6	23		21	8			
A	31	2	86	66	.048	.25	.10	84.5	340.0		8	33		28	11			
A	32	2	85	100	.086	.48	.26	84.7	346.7		22	90		76	31			
A	34	4	87	47	.080	.50	.08	124.0	180.0		10	14		34	5			
A	Totals	195	87	60	31.424	46.05	47.67	27.7	86.2		1,319	4,110		4,602	1,434			
D	10	1	86	27	.022	.01												
D	17	6	87	94	.833	1.31	1.67	29.2	94.4		49	157		170	55			
D	18	3	88	115	.295	.52	.87	26.4	89.8		23	78		80	27			
D	21	3	86	119	.015	.04	.04	36.3	144.4		2	6		6	2			
D	22	5	89	111	.228	.60	.67	40.1	169.6		27	114		94	40			
D	23	6	87	89	.593	1.71	1.46	41.5	147.3		61	216		212	75			
D	24	6	86	128	.893	2.80	2.68	51.3	214.9		137	575		480	201			
D	25	7	86	127	.843	2.88	2.53	54.3	219.9		137	556		479	194			
D	26	7	87	107	.286	1.05	.72	60.3	229.9		43	165		151	58			
D	27	12	87	125	.638	2.54	1.92	63.3	269.7		121	517		423	181			
D	28	3	86	137	.008	.04	.02	72.8	323.3		2	8		6	3			
D	29	5	85	143	.178	.82	.53	82.4	367.9		44	195		153	68			
D	30	7	89	138	.116	.57	.35	84.6	403.3		29	140		102	49			
D	31	2	87	142	.004	.02	.01	96.2	474.0		1	5		4	2			
D	32	5	88	144	.217	1.21	.65	101.1	495.6		66	323		230	113			
D	33	3	85	138	.006	.04	.02	100.4	457.8		2	8		6	3			
D	34	1	88	146	.002	.01	.01	117.0	606.7		1	3		2	1			
D	35	1	89	126	.002	.01	.01	109.3	566.7		1	3		2	1			
D	36	5	85	142	.046	.32	.14	122.2	604.3		17	83		58	29			
D	37	3	83	148	.005	.04	.01	121.3	582.2		2	8		6	3			
D	44	2	89	157	.086	.91	.26	204.7	1044.8		53	269		184	94			
D	49	1	85	157	.001	.01	.00	248.3	1306.7		1	4		2	1			
D	Totals	94	87	117	5.314	17.45	14.57	56.1	235.8		817	3,434		2,851	1,199			
S	16	1	82	88	.062	.09	.12	28.5	90.0		4	11		12	4			
S	18	1	89	63	.202	.36	.40	29.0	105.0		12	42		41	15			
S	23	1	83	65	.124	.36	.25	44.5	160.0		11	40		38	14			
S	26	1	83	84	.097	.36	.19	69.0	195.0		13	38		47	13			
S	28	1	77	74	.003	.01	.01	74.0	220.0		0	1		1	0			
S	29	1	86	71	.002	.01	.00	81.0	285.0		0	1		1	0			
S	31	1	85	74	.002	.01	.00	92.0	335.0		0	1		1	0			
S	34	6	83	86	.164	1.04	.33	125.5	450.0		41	148		144	52			
S	35	1	86	94	.002	.01	.00	137.0	530.0		0	2		2	1			
S	37	3	87	121	.097	.73	.29	131.5	645.6		38	187		133	65			
S	38	1	83	159	.001	.01	.00	162.0	833.3		1	3		2	1			
S	40	1	81	99	.001	.01	.00	186.0	725.0		0	2		2	1			

TC		PSTNDSUM										Stand Table Summary										Page Date:		3 3/14/2019	
T04N R08W S27 TyTAKE THRU T04N R08W S27 TyRW					Project WOODY										Time:		10:57:11AM								
					Acres 349.00										Grown Year:										
S Spec	T	Sample		Tot		Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	T o t a l s											
		DBH	Trees	FF 16'	Av Ht				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF									
S		47	1	85	141	.030	.36	.09	242.7	1256.7		22	112		75	39									
S		49	1	85	89	.001	.01	.00	266.5	1140.0		0	2		2	1									
S		51	1	81	141	.025	.36	.08	269.3	1220.0		20	92		71	32									
S		55	1	81	158	.022	.36	.06	293.3	1546.7		19	101		67	35									
S		58	1	89	129	.019	.36	.06	283.0	1686.7		17	99		58	34									
S		60	3	78	161	.037	.73	.11	359.0	1878.6		40	208		139	73									
S		Totals	27	85	91	.891	5.15	2.01	119.0	541.8		240	1,090		836	380									
M		11	1	86	77	.361	.24																		
M		16	1	87	34	.171	.24	.17	22.0	40.0		4	7		13	2									
M		17	1	85	68	.151	.24	.30	24.5	80.0		7	24		26	8									
M		23	1	87	44	.002	.01	.00	53.0	50.0		0	0		0	0									
M		33	1	86	45	.001	.01	.00	118.0	400.0		0	0		0	0									
M		Totals	5	86	64	.686	.73	.48	23.9	66.1		11	31		40	11									
C		32	1	61	70	.006	.03	.01	76.0	130.0		1	2		3	1									
C		35	1	60	95	.005	.03	.01	65.5	165.0		1	2		2	1									
C		36	1	83	52	.005	.03	.00	143.0	180.0		1	1		2	0									
C		42	1	83	124	.004	.03	.01	200.0	925.0		1	7		5	2									
C		Totals	4	70	82	.020	.14	.04	107.9	311.6		4	11		13	4									
Totals		732		86	72	84.813	136.66	140.58	35.2	129.9		4,943	18,257		17,252	6,372									

Log Stock Table - MBF

T04N R08W S27 TyTAKE
THRU
T04N R08W S27 TyRW

Project: WOODY
Acres 349.00

Page 2
Date 3/14/2019
Time 10:57:33AM

S T	So Gr rt de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches													
							2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+		
H	DO	CU	3	0	100.0															
H	DO	CU	4	0	100.0															
H	DO	CU	5	0	100.0															
H	DO	CU	6	12	100.0															
H	DO	CU	7	0	100.0															
H	DO	CU	8	11	100.0															
H	DO	CU	10	12	100.0															
H	DO	CU	12	9	100.0															
H	DO	CU	13	0	100.0															
H	DO	CU	14	0	100.0															
H	DO	CU	15	0	100.0															
H	DO	CU	16	1	100.0															
H	DO	CU	20	32	100.0															
H	DO	CU	22	0	100.0															
H	DO	CU	30	1	100.0															
H	DO	CU	40	28	100.0															
H	DO	2S	12	14		14	.4									2	13			
H	DO	2S	14	0		0	.0				0	0	0	0						
H	DO	2S	16	0		0	.0					0								
H	DO	2S	20	6		6	.2					1	0			5		0		
H	DO	2S	24	1		1	.0					0	0	0						
H	DO	2S	26	0		0	.0					0								
H	DO	2S	28	0		0	.0							0						
H	DO	2S	30	15		15	.4			13	0	0				0	1	1		
H	DO	2S	32	146		146	4.4				35	27	19	22		0	15	28		
H	DO	2S	34	1		1	.0					0				0	0			
H	DO	2S	36	1		1	.0			0	0		0		0					
H	DO	2S	38	12		12	.4				11			1						
H	DO	2S	40	2,010	2.4	1,961	58.6			3	36	82	389	357	532	298	214	47	1	
H	DO	3S	12	0		0	.0					0								
H	DO	3S	14	0		0	.0			0	0		0	0						
H	DO	3S	16	0		0	.0				0	0	0							
H	DO	3S	18	0		0	.0			0		0	0							
H	DO	3S	20	9		9	.3			1	2	2	2	1						
H	DO	3S	24	29		29	.9		1	4		3	1	0	20					
H	DO	3S	26	8		8	.2			4	0	0		4						
H	DO	3S	28	13		13	.4			13	0	0	0		0					

TC PLOGSTVB				Log Stock Table - MBF																
T04N R08W S27 TyTAKE THRU T04N R08W S27 TyRW				Project: WOODY Acres 349.00		Page 3 Date 3/14/2019 Time 10:57:33AM														
S T Spp	Gr rt	Log de Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches													
							2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+		
H	DO	3S	30	20		20	.6			0	3	3		0	13					
H	DO	3S	32	145	1.2	144	4.3			40	7	94	1	1	0		0			
H	DO	3S	34	51	9.2	46	1.4		24	8	15									
H	DO	3S	36	13		13	.4			13	0									
H	DO	3S	38	34		34	1.0		5	18	0	4	6		0					
H	DO	3S	40	617	1.2	610	18.2		12	209	158	215	11		3	1	1			
H	DO	4S	12	8		8	.2			3	0	5								
H	DO	4S	14	5		5	.2			3	2	0	0	0	0					
H	DO	4S	16	39		39	1.2			25	13	0	0							
H	DO	4S	18	13		13	.4			11		2								
H	DO	4S	20	61		61	1.8		6	48	5	0	3	0						
H	DO	4S	24	43		43	1.3		4	38										
H	DO	4S	28	9		9	.3			9										
H	DO	4S	30	51	4.8	49	1.5			49	0									
H	DO	4S	32	16	9.6	14	.4			14										
H	DO	4S	34	0		0	.0			0										
H	DO	4S	40	17		17	.5		2	15										
H	Totals			3,519	5.0	3,343	52.5		54	530	256	457	442	383	579	321	244	76	1	
A	DO	CU	2	1	100.0															
A	DO	CU	3	1	100.0															
A	DO	CU	4	1	100.0															
A	DO	CU	5	5	100.0															
A	DO	CU	6	7	100.0															
A	DO	CU	8	7	100.0															
A	DO	CU	13	6	100.0															
A	DO	CU	15	11	100.0															
A	DO	CU	30	2	100.0															
A	DO	1S	30	24		24	1.7					24								
A	DO	1S	40	234	1.8	230	16.0					20	53	68	65	24				
A	DO	2S	16	6		6	.4					6								
A	DO	2S	20	24		24	1.7					4	5		15					
A	DO	2S	24	14		14	1.0					14								
A	DO	2S	28	18		18	1.2								18					
A	DO	2S	30	110		110	7.7			7		82	5	16						
A	DO	2S	32	78	4.0	75	5.2			11		7	24	33						
A	DO	2S	36	59	2.2	57	4.0			5	7	35				11				

Log Stock Table - MBF

T04N R08W S27 TyTAKE
THRU
T04N R08W S27 TyRW

Project: **WOODY**
Acres **349.00**

Page **4**
Date **3/14/2019**
Time **10:57:33AM**

S Spp	T	So rt	Gr de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches											
									2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
A		DO	2S	40	203		202	14.1					112	33	57					
A		DO	3S	18	11		11	.8			2	9								
A		DO	3S	20	2		2	.1			2									
A		DO	3S	24	5		5	.3			5									
A		DO	3S	26	9		9	.6				9								
A		DO	3S	30	131		130	9.1			2	13	81	33						
A		DO	3S	32	71		71	5.0			4	42	26							
A		DO	3S	34	20	6.4	19	1.3			7	12								
A		DO	3S	36	6	16.5	5	.3	0		5									
A		DO	3S	38	5	16.7	5	.3			5									
A		DO	3S	40	171	1.5	169	11.8			69	26	34	32	7					
A		DO	4S	14	3		3	.2			3									
A		DO	4S	16	29		29	2.0		3	23		2							
A		DO	4S	18	18		18	1.2			9	9								
A		DO	4S	20	61		61	4.3			60	1								
A		DO	4S	24	15		15	1.0			15									
A		DO	4S	26	3		3	.2		3										
A		DO	4S	28	15		15	1.1			15									
A		DO	4S	30	9		9	.6			9									
A		DO	4S	32	7		7	.5			7									
A		DO	4S	36	29	6.3	27	1.9			27									
A		DO	4S	38	10		10	.7			10									
A		DO	4S	40	51		51	3.6			51									
A		Totals			1,493	3.9	1,434	22.5	0	6	334	146	418	215	182	98	34			
S		DO	CU	4	4	100.0														
S		DO	CU	6	5	100.0														
S		DO	CU	8	8	100.0														
S		DO	2S	32	12		12	3.2							3	9				
S		DO	2S	34	1	12.2	0	.1									0			
S		DO	2S	40	269	4.9	256	67.2					3		24	5	62	99	63	
S		DO	3S	14	2		2	.4								2				
S		DO	3S	18	0		0	.0					0							
S		DO	3S	20	2		2	.5						2						
S		DO	3S	24	1		1	.2			1									
S		DO	3S	28	2		2	.4				2								
S		DO	3S	30	13		13	3.3						13						

Log Stock Table - MBF

T04N R08W S27 TyTAKE
THRU
T04N R08W S27 TyRW

Project: **WOODY**
Acres **349.00**

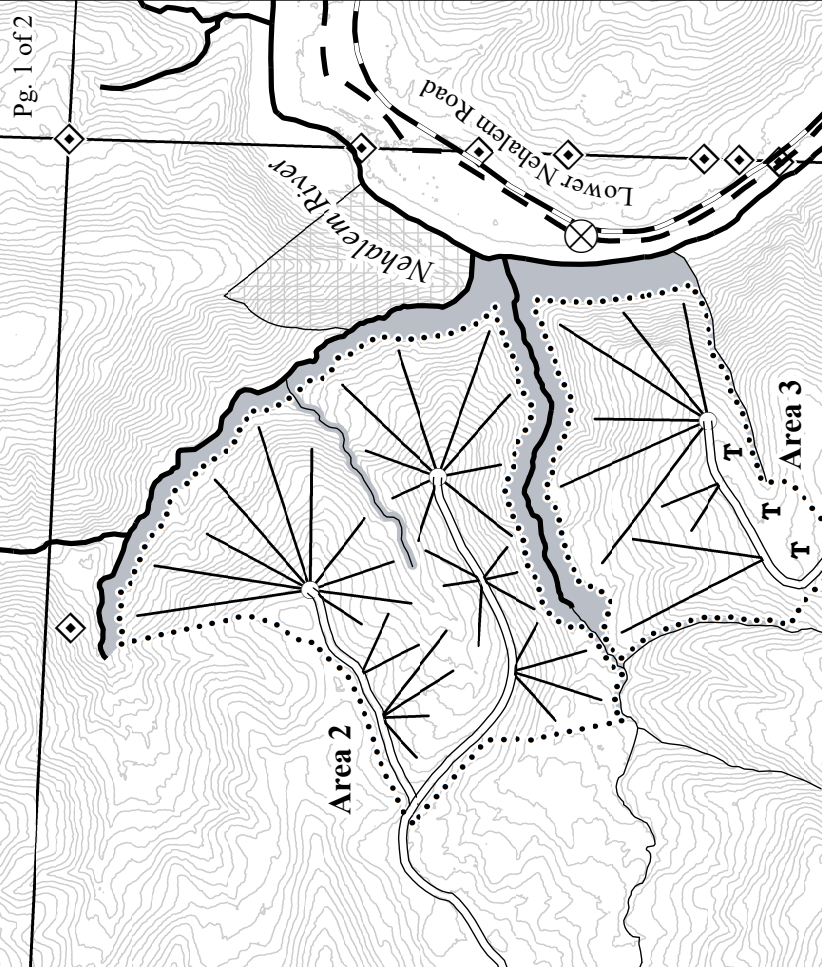
Page **5**
Date **3/14/2019**
Time **10:57:33AM**

Spp	S T	So rt	Gr de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches											
									2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
S		DO	3S	32	3		3	.9					0		3					
S		DO	3S	36	3		3	.9			3									
S		DO	3S	40	68		67	17.7					0	0	4	48	15			
S		DO	4S	20	6		6	1.6			2	2	0	2						
S		DO	4S	30	12		12	3.1						12						
S		DO	4S	32	0		0	.0							0					
S		DO	4S	40	1		1	.3					0						0	1
S		Totals			411	7.3	380	6.0			6	4	3	17	12	35	64	78	99	63
M		DO	CU	45	9	100.0														
M		DO	2S	30	0	11.1	0	1.1							0					
M		DO	3S	32	7		7	67.3					7							
M		DO	4S	20	1		1	9.6			1									
M		DO	4S	28	3	20.0	2	21.7			2									
M		DO	4S	38	0	28.6	0	.3			0									
M		Totals			20	46.2	11	.2			3		7		0					
C		DO	CU	6	0	100.0														
C		DO	2S	32	1		1	15.9							1					
C		DO	2S	40	2		2	45.4										2		
C		DO	3S	20	0		0	4.1			0	0								
C		DO	3S	32	0		0	13.1							0					
C		DO	3S	40	1	2.2	1	21.5					0		1					
C		Totals			4	10.3	4	.1			0	0	0		1	1		2		
Total		All Species			6,673	4.5	6,372	100.0	0	67	888	456	1009	814	727	1173	566	379	227	65

LOGGING PLAN

OF TIMBER SALE CONTRACT NO.
AT-341-2020-W00590-01
WOODY WOODPECKER
PORTIONS OF SECTIONS 27, 28,
33, AND 34, T4N, R8W, W.M.,
CLATSOP COUNTY, OREGON

Approximate Net Acreage	MC Acres	PC Acres
Area 1 (PCMP) =		180
Area 2 =		70
Area 3 =	41	
Area 4 =	51	
Area 5 (R/W) =	7	
Total =	99	250
Total Sale Acreage = 349		



Legend

- Ownership Boundary
- Timber Sale Boundary
- Patch Cut
- Operationally Restricted Area
- Non-Thinnable Area
- Green Tree Retention Area
- Directional Felling Area
- Existing Surfaced Road
- Existing Unsurfaced Road
- Paved Road
- Unsurfaced Road
- Surfaced Road
- Existing Landing
- Type "F" Stream
- Type "N" Stream
- Nonposted Stream Buffer
- Posted Stream Buffer
- Ground-Based Yarding Area
- Dispersed Campsite
- Survey Monument

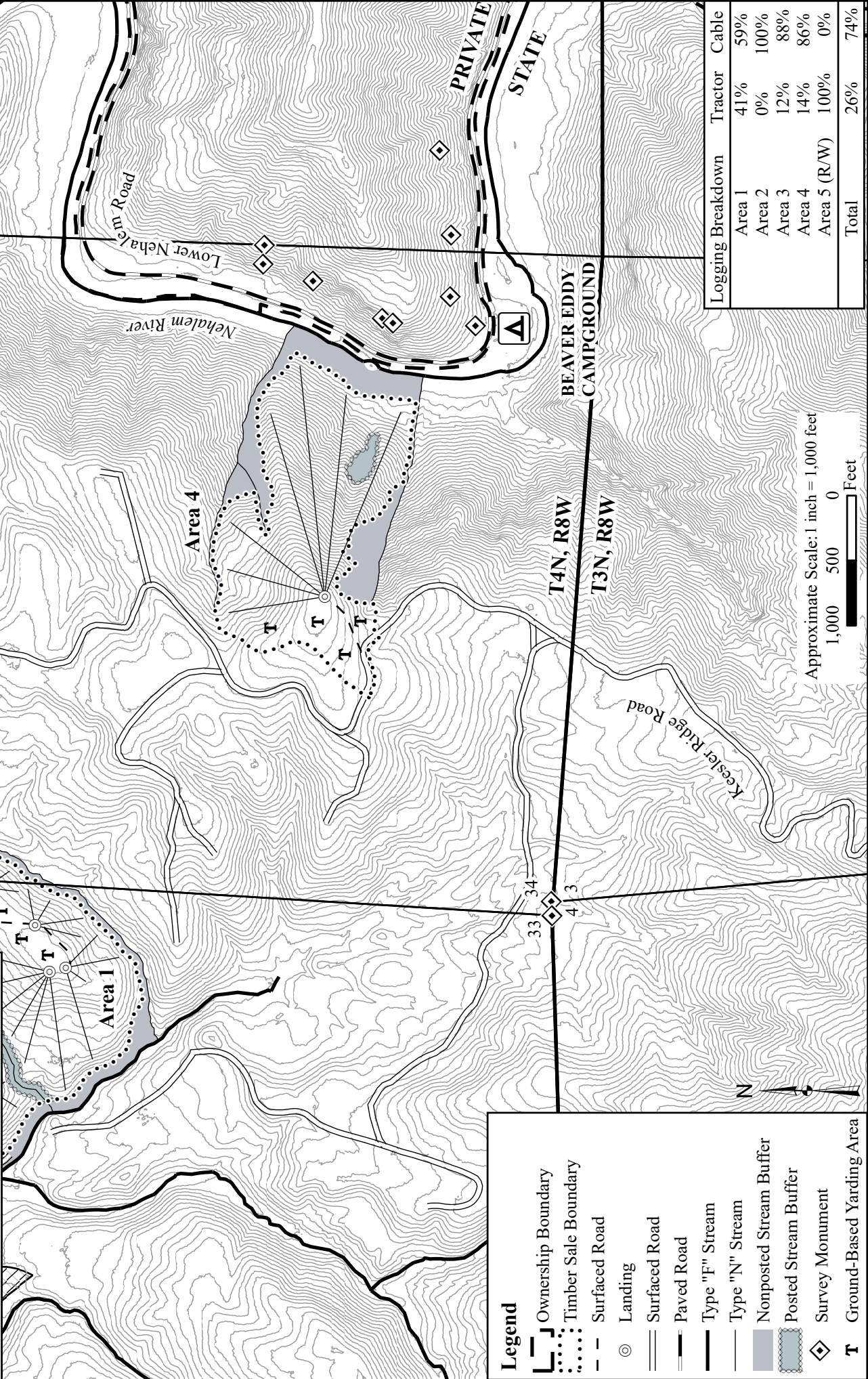
Logging Breakdown

	Tractor	Cable
Area 1	41%	59%
Area 2	0%	100%
Area 3	12%	88%
Area 4	14%	86%
Area 5 (R/W)	100%	0%
Total	26%	74%

Approximate Scale: 1 inch = 1,000 feet
1,000 500 0 Feet

LOGGING PLAN
OF TIMBER SALE CONTRACT NO.
AT-341-2020-W00590-01
WOODY WOODPECKER
PORTIONS OF SECTIONS 27, 28,
33, AND 34, T4N, R8W, W.M.,
CLATSOP COUNTY, OREGON

Approximate Net Acreage	MC Acres	PC Acres
Area 1 (PCMP) =		180
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Area 3 =	41	
Area 4 =	51	
Area 5 (R/W) =	7	
Total =	99	250
Total Sale Acreage =	349	



Legend

- Ownership Boundary
- Timber Sale Boundary
- Surfaced Road
- Landing
- Surfaced Road
- Paved Road
- Type "F" Stream
- Type "N" Stream
- Nonposted Stream Buffer
- Posted Stream Buffer
- Survey Monument
- Ground-Based Yarding Area

Logging Breakdown	Tractor	Cable
Area 1	41%	59%
Area 2	0%	100%
Area 3	12%	88%
Area 4	14%	86%
Area 5 (R/W)	100%	0%
Total	26%	74%